MOTOR AGE

VOL. X NO. 11 CHICAGO, SEPTEMBER 13, 1906 $2.00 Per Year

AMERICA'S FIRST HANDICAP HILL-CLIMB

CHICAGO, Sept. 8—Honors in the first hill-climb attempted by Chicagoans were evenly distributed Thursday at Algonquin when the Autocar took class A, for cars listing at $1,000 and under; the Jackson class B, for cars from $1,000 to $1,750; the Queen class C, for cars listing from $1,750 to $2,500, and the Pierce for cars over $2,500. Class E, for steamers, was called off because only one car was entered. The tire people split up about even, the Fisk taking class A, the Diamond having one, two, three in class B, the Goodyear taking class C and the Goodrich being one, two in class D. The Pierce carried off the time laurels, although in the afternoon it had to divide with the six-cylinder Stevens-Duryea. That's the story in a nutshell, but it does not begin to tell of the success of the affair which was promoted by the Chicago Automobile Trade Association and the Chicago Automobile Club, and which probably was the most unique motoring affair ever run off in this or any other country. In the first place, it was a double hill-climb, one from a standing start and the other from a flying one, which it is believed has never before been attempted, even in England, where they have the hill-climbing bug for fair. Then the local people showed their progressiveness by being the first ones in this country to try the handicapping system. England, it is true, is an old-timer at this sort of work, but the system employed in the Algonquin contests is a departure from this in that horsepower does not figure in the reckoning at all, the cylinder dimensions being multiplied by the time in seconds, then this result divided by the weight of the cars. This process was gone through with in each of the events, the classification or grading being made by adding the two percentages.

PRICE'S MAXWELL'S STRONG FINISH

Naturally, the use of such a handicapping formula as used brought hosts of surprises and not a few protests, but, figured out, the results show that the car giving best results out of a certain cylinder capacity won. In class A the winning Autocar required 13 seconds longer on the two hills than did the Buick, which was relegated to second place. But the Autocar has 100.53 cubic inches of cylinder space and the Buick 159.04 cubic inches. The Buick has, in short, 59 per cent advantage on the fuel capacity score. Look at the weight problem: The Autocar, with its driver, tipped the scales at 1,550 pounds, the Buick raised the beam at 2,140 pounds. On this score the Buick carried 38 per cent more weight, but when comparing weight with cylinder capacity it works out that the Autocar had 15.4 pounds weight for every cubic inch of cylinder space and the Buick 13.4 pounds for each cubic inch of gas space in its cylinders. Against this the Buick climbed the hill in 10 per cent fewer seconds than its competitor, which, in view of the other advantage of 59 per cent capacity, was not sufficient to turn the tide of victory to it.

In class B a Reo made the best average time on both hills, but gets fifth place in its class. The reason for this is partly given when it is stated that the Reo carried 8.4 pounds for every cubic inch of cylinder space, whereas the winning Jackson carried 10.6 pounds; the Buick, which was second, 14.8 pounds, and the Stoddard-Dayton runabout, third, 12.5 pounds. The formula established that the heaviest car does not receive undue advantage, but shows that cars should travel at a speed commensurate with weight per capacity.

The results in class C, in which the Queen was a winner, showed it carried 10.7 pounds per cubic inches of gas, while these figures in the Haynes, which was second, were 10.9 and for the Stoddard-Dayton, which was third, but 7.8. The Haynes has 5 per cent more capacity and the Stoddard 18 per cent additional capacity. Perhaps the most notable instance of how the formula operated was in the big class, in which a Pierce was first, another Pierce second, the Columbia third and the six-cylinder Stevens-Duryea eighth. The win-

CARS LINED UP ON ROADSIDE JUST BEFORE START OF THE MORNING HILL-CLIMB

ning Pierce has 269.54 cubic inches cylinder space, and the Pierce, running second, has 431.97 cubic inches. The bigger car won on both hills by 26 seconds, but this was not sufficient to overcome the advantage it had by having 60 per cent more cylinder space, weighing but 13 per cent more and running in but 18 per cent less time. In the case of the Duryea six, it got a poor time, as it was not started in its turn, and its motor ran cold before going to the finishing line. The Duryea six has 558.2 cubic inches of space, 107 per cent—more than double—more than that of the winning Pierce, yet it weighs but 21 per cent more and did the two hills in 20 per cent less seconds. The winning Pierce carries 11.6 pounds to the cubic inch of space; the second Pierce, 8.2 pounds; the Columbia, that ran third, 121 pounds, and the Duryea six but 6.7 pounds, it being the biggest car in the competition and yet carrying the least weight per cubic inch of combustion cylinder capacity.

With the formula a slight advantage is gained by fast-running engines, those operating at 1,500 revolutions and higher per minute. Another class of motors to benefit unduly by it is those in which the stroke is less than the bore; these motors generally operate rapidly. A formula to absolutely test the hill-climbing qualifies of a machine would have to take into consideration several influences that the Chicago organizations found impossible to handle on their first venture in hill climbing. First, the gasoline consumed should be measured and the speed of the crankshaft taken throughout the entire ascent. This requires special fuel tanks for the dash, special and uniform gasoline and speed-measuring instruments that could be readily attached to the crankshafts. Besides these, the car weight with its full load, its time in seconds, and the gearing ratio between the gearset and back wheel should be computed. Added to these could be taken a scheme for estimating the windage of each machine. With definite data on all of these points the judges could readily decide which car was the best hill-climber, either from a flying or standing start. A few critics of the formula used see in it the placing of undue advantage on weight. Given to cars with equal cylinder capacity and climbing the hill in the same time, that car with the greater weight would be acclaimed a winner, as its motor transported more pounds of load up the hill on the same quantity of fuel. Not knowing the speed of the motor and the compression used, it is difficult to say if this is the case, but providing it is so, then the motor doing the most work is declared the winner.

PAUL HOFFMANN, THE STAR OF THE DAY

It was a genuine motoring holiday, this Algonquin affair, and not only interested the contestants themselves but some 1,000 others who drove the 50 miles and put up with the discomforts of poor hotel accommodations just to witness the climbs. The events were scheduled for Thursday, but the night before the hegira commenced. The club had called a run as far as Elgin, but it was a happy-go-lucky sort of a crowd that was going out and although Chairman Gregory, of the runs and tours committee, stood by the fountain in Garfield park to head the procession none would stop and Gregory saw twenty cars go sailing by before he became disgusted with his job and jumped into his own machine and hiked for Elgin himself. The old bicycle course was a dusty one that afternoon and the country folk must have thought all the automobiles owned in Chicago were headed that way. They started as early as noon and there was no letup until late in the evening. Those who started late got the best of it, for there was a glorious moon on duty that night, while there was just enough autumn in the air to make it ideal for country riding. The dust, too, had settled and in consequence the night travelers enjoyed a ride such as they seldom get in these sections. At Elgin every hotel was packed. This isn't saying much, for there are only three in the place, but these had enough at 5 o'clock and the late comers were told to move on. They did, Algonquin taking care of a few, while others went on to Crystal Lake and Woodstock.

They talk about the night before and early morning scenes of the Vanderbilt. They were repeated on a miniature scale at Algonquin. It was beautiful moonlight, almost as light as day, when the Motor

Age Rambler rolled into the town at midnight. The streets were deserted, the only signs of life being a watchman going around turning off the electric lights. The grumpy old landlord at the Morton house was roused with difficulty and at first decided he had no rooms left. Finally he warmed up enough to give the three men in the party one bed and while he was fumbling round for a match the silence of the peaceful night was broken by the continuous roar of a big car with the muffler cut out. A Vanderbilt racer would have had hard work beating it for noise. Down the quiet street the big machine came, headed for Phillips hill for a few more trials. It was the Stevens-Duryea six-cylinder driven by Frank Illsley, loaded with as many people as it had cylinders, and Illsley was putting it through a course of sprouts. He was still going it when old Morpheus claimed the newspaper men.

The town was awake good and early. Phillips hill starts in front of the Morton house and as early as 5 o'clock the cars were out and at it. By 8 o'clock the delegations from Elgin and the surrounding towns were in and the town was a regular beehive. Weighing in started early, W. D. Buchanan taking charge of the milk factory scales until Jim Bayless got there. It was a necessary part of the formula that the weight of each car be known and this prelimnary was gone through with great care. However, the master of the scales had not read his rules carefully, for he had weighed a dozen cars with their drivers in the seats before it was discovered that the rules said a car should be weighed empty. Of course it was then too late to rectify the mistake, so those that came later had their drivers weighed also. Then Joe Gunther, chairman of the committee, began to worry over the electrical timing apparatus—a simple push button arrangement which, however, took time to lay out, for it meant the stringing of a quarter-mile of wire up Perry hill, where the morning standing starts were to be held. John W. Hayden, the local Prest-O-Lite man, had this in charge and he sweated and fumed, but finally had his wires strung by 10 o'eclock, the hour set for the morning trials. Clerk of the Course Daniel J. Canary had his forces to work early and Starter Root and his assistants, J. C. Zimmerman and Percy Platt, kept in step with him so that on the appointed hour everything was ready. Frank X. Mudd was on the bridge, which marked the start, nervously fingering the lever on his little Ford runabout. Root pushed the button and the Ford got away to a beautiful start.

TECHNICAL COMMITTEE AT WORK

Meanwhile the timers and judges at the top of the hill prepared for fast work. L. E. Myers had his ear close to the buzzer for the expected ring and W. C. Thorne, George Greenburg, Charles E. Gregory and N. H. Van Sicklen stood ready to do their work. Myers strained his ear drums, but still no ring. Just then came the noise of the puff-puffs of the Ford and Mudd sailed around the bend. He went sailing by but there was no clicking of watches, for the wire had not worked. Right behind him came W. Hildreth in one of the two Holsmans. Immediately all was confusion. Dan Canary ran down the hill to warn the others and Hayden started sweating blood.

COMPLETE RESULTS OF THE TWO HILL-CLIMBS AT ALGONQUIN, ILL., SEPTEMBER 6

CLASS A, FOR CARS LISTING $1,000 AND UNDER

No.	Car	H. P.	Entrant	Driver	Tires	Cyl	Cylinder Capacity	Wgt.	A. M. Time	A. M. Points	P. M. Time	P. M. Points	Total Points
10	Autocar	12	Geyler & Levy	James Levy	Fisk	2	4 x4	1550	:49	3.18	1:22⅝	5.35	8.53
4	Buick	22	Buick Motor Co.	W. Willett	Diamond	2	4½x5	21 0	:52⅖	3.88	1:05⅜	4.87	8.75
5	Autocar	12	A. A. Belford	A. A. Belford	Fisk	2	4 x4	1620	:51	3.16	1:29	5.52	9.12
9	Maxwell	10	Maxwell-Briscoe Co.	C. W. Price	International	2	4 x4	1310	1:08⅘	5.2	1:21	6.21	11.41
3	Maxwell	10	Maxwell-Briscoe Co.	W. B. Jameson	International	2	4 x4	1415	1:16⅖	5 41	1:30⅘	6.44	11.85
7	Mitchell	16-18	Mitchell Motor Car Co.	C. W. Barstow	Ajax	4	3¾x4	2140	:48⅗	8.96	1:37⅖	8.04	12.00
6	Cadillac	10	Cadillac Auto Co.	G. Farnsworth	Hartford-Dunlop	1	5 x5	1930	1:46⅗	5.42	2:48	8.54	13.96
1	Ford	15	F. X. Mudd	F. X. Mudd	Firestone	4	3¾x3¾	1290	:55⅖	6.4	1:18⅘	9.09	15.49
2	Holsman	10	Holsman Auto Co.	W. Hildreth	Firestone	2	4 x4	1080	1:04⅖	5.99	1:46	9.86	15.85
8	Holsman	10	Holsman Auto Co.	V. Bendix	Firestone	2	4 x4	1095	1:23½	7.66	2:02⅜	11.25	18.91

CLASS B, FOR CARS LISTING FROM $1,000 TO $1,750

15	Jackson	20	Hagmann & Hammerly	J. R. Burman	Diamond	2	5¼x5	2180	:37⅘	8.75	1:40⅕	4.99	8.74
12	Buick	22	Buick Motor Co.	W. Willett	Diamo 1 C	2	4½x5	2860	1:05	4.3	1:15	5.05	9.35
14	Stoddard-Dayton	15	McDuffee Auto Co.	W. Healy	Diamo 1 C	4	3½x3½	1700	:51	4.03	1:20⅖	6.38	10.41
11	Mitchell	24-30	Mitchell Motor Car Co.	F. Haumeson	G. & J.	4	4¼x5	2500	:45	5.1	1:12½	8.19	13.29
16	Reo	16	Ralph Temple Auto Co.	L. J. McInnis	M. & W.	2	4¾x6	1828	:43⅘	5.21	1:09	8.19	13.40
13	Rambler	16	T. B. Jeffery & Co.	G. C. Collier	Goodyear	2	5 x6	2550	1:48	9.5	out		

CLASS C, FOR CARS LISTING FROM $1,750 TO $2,500

18	Queen	28 30	Branstetter Motor Co.	B. Bradley	Goodyear	4	4¼x4¾	2900	:42⅗	4.06	1:04⅘	5.88	9 94
24	Haynes	30	Haynes Auto Co.	F. Nutt	Diamond	4	4¼x5	3102	:38⅕	4.21	:54⅗	6 09	10.30
20	Stoddard-Dayton	30	McDuffee Auto Co.	J. H. McDuffee	Fisk	4	4½x5	2500	:36⅕	4.6	:55⅕	7.07	11.67
30	Mitchell	24-30	Mitchell Auto Co.	O. C. Friend	G. & J.	4	4¼x5	2910	:47⅗	4.61	1:18	8 16	12.77
21	Mitchell	35	Mitchell Auto Co.	F. J. Zirbes	G. & J.	4	4½x5	2600	:48⅕	4.71	1:11⅘	8.73	13.44
31	Queen	28-30	Branstetter Motor Co.	C. A. Englebeck	Goodyear	4	4¼x4¾	2910	1:04⅘	6.	1:23⅖	7.73	13.72
23	Wayne	35	Wayne Auto Co.	F. Grout	Goodyear	4	4¾x5	2540	:53⅛	7.25	1:04⅕	8.74	15 99
17	Rambler	35-40	J. F. Gunther	J. F. Gunther	Fisk	4	5 x5½	3252	:53	7.04	1:22⅖	11.28	18.32
28	Rambler	35-40	T. B. Jeffery	G. C. Collier	Fisk	4	5 x5½	2900	:46	10.3	1:27⅕	19.5	29.8
26	Pope-Hartford	25	C. R. Horrie	C. R. Horrie	Diamond	4	4½x5⅛	3350	:58⅗	4.7	Out		
22	Elmore	30-35	B. C. Hamilton	F. M. Pepper	G. & J.	4	4½x4				1:13⅕		
27	Moline	30-35	C. P. Warner & Co.	N. H. Vandewert	Diamond	4	4¼x5				1·11⅗		7.77

CLASS D, FOR CARS LISTING OVER $2,500

43	Pierce	28-32	A. McNally	J. V. Lawrence	Goodrich	4	4¼x4¾	3150	:46⅘	4.	:59⅗	5.08	9.08
45	Pierce	40-45	H. Paulman	P. Hoffmann	Goodrich	4	5 x5½	3560	:34	3.82	:46⅗	5.27	9.09
40	Columbia	24-28	Electric Vehicle Co.	R. Herrington	Diamond	4	4 x4¼	2603	:55¼	4.05	1:05	5.3	9 35
46	Autocar	24	Geyler & Levy	F. Vaughan	Fisk	4	4 x4½	2975	:53	3.7	1:26⅗	6.56	10.26
36	Knox	35-40	G. A. Crane	G. A. Crane	Diamond	4	4¾x5½	3790	:46	4.73	1:00	6.1	10.79
39	Thomas	50	C. A. Coey	C. A. Coey	Goodyear	4	5½x5½	4051	:37⅘	4.86	:54⅗	7 01	11.87
44	Stearns	40-45	Githens Bros. Co.	Dan Orme	G. & J.	4	4⅞x5⅞	3580	:39⅕	4.9	:59	7.28	12.16
41	Stevens-Duryea	50	F. P. Illsley	F. P. Illsley	Goodrich	6	4¾x5½	3750	:39⅕	6.09	:46⅗	7.17	13.26
35	Pierce	45	M. Beck	M. Beck	Cont. & Goodrich	4	5 x5½		:52⅘	5 96	1:13⅖	8.32	14.28
49	Apperson	40-45	N. H. VanSicklen	N. H. VanSicklen, Jr.	M. & W.	4	5 x5	3175	:39⅕	4.91	1:45	12.9	17.81

BETWEEN THE TWO TURNS

THE LITTLE FORD ON PERRY HILL

NEARING THE FINISHING LINE

Of course there was a delay. The bell began ringing to beat the band and no one could stop it. Hayden started on an investigating tour to find the trouble and still the bell kept up its fiendish clatter. Finally Tom Hay discovered the trouble. It seems the bell wire had been strung along the barbed wire fence and the people leaning on the fence to watch the climb had pressed the bell wire against the barbs, effectually short-circuiting the bell wire. The minutes were slipping by, and apparently there was no way of fixing the wire. Some proposed putting a timer in each car, but there wasn't enough stop watches to go around. Then Van Sicklen was hit with a happy idea. He located himself on an adjoining hill, got his eagle eye on Starter Root's flag and as it went down he wig-wagged Jim Bayless up by the timers, who in turn gave the officials the signal. Of course this was going around Robin Hood's barn but it was the best way out of the dilemma. It wasn't as accurate as the bell, but it was a case of what's fair for one is fair for another. One or two of the cars may have got a little the worst of it and some may have benefited, but if it hadn't been for this system the hill climb would have had to be given up or postponed.

Once this system got to working it was child's play to send the cars away. In less than three-quarters of an hour the starter was through his work and then it was nearly noon. The hill is probably a mile from town and at the end of the doings there was a grand rush back to get at the grub before it was exhausted. Some of the overanxious ones went into the ditch trying to work up the long line of cars, but everyone was good-natured, so these mishaps were laughed at. The Morton house commissary department worked overtime and fed all the hungry ones, but it was a big job. While the mob was eating, David Beecroft and F. E. Edwards, manager of the Chicago School of Motoring, got busy figuring out the results of the handicap for the morning event. They had been delayed by missing weight cards, but by 1 o'clock they gave out the results which showed that Paul Hoffmann in a Pierce Great Arrow had made the fastest time of the bunch, having gone up Perry hill in :34, a mark which was consistent with what the car had done in practice. The next best to that was :36⅕, made by the McDuffee Stoddard-Dayton. The morning classification was as follows:

CLASS A

Pos.	Car and entrant	Time	Points
1	Autocar, A. A. Belford	:51	3.16
2	Autocar, Geyler & Levy	:49	3.18
3	Buick, Buick Motor Co.	:52 2-5	3.88
4	Mitchell, Mitchell Motor Co.	:48	3.96
5	Maxwell, Maxwell-Briscoe Co.1	:08 4-5	5.2
6	Maxwell, Maxwell-Briscoe Co.1	:16 1-5	5.42
7	Cadillac, Cadillac Motor Co..	:51	5.42
8	Holsman, Holsman Auto Co.1	:04 2-5	5.29
9	Ford, Frank X. Mudd	:55	6.4
10	Holsman, Holsman Auto Co.1	:23 2-5	7.66

CLASS B

1	Jackson, Hagmann & Hammerly Co.	:37 4-5	3.75
2	Stoddard-Dayton, McDuffee Automobile Co.	:51	4.03
4	Mitchell, Mitchell Motor Co.	:45	5.1
5	Reo, Ralph Temple Auto Co.	:43 4-5	5.21
6	Rambler, T. B. Jeffery & Co.1	:43	9.5

CLASS C

1	Queen, Branstetter Motor Co.	:45 2-5	4.06
2	Haynes, Haynes Auto Co.	:38 1-5	4.21
3	Stoddard-Dayton, McDuffee Automobile Co.	:36 1-5	4.6
4	Mitchell, Mitchell Motor Co.	:47 3-5	4.61
5	Mitchell, Mitchell Motor Co.	:48 1-5	4.7
6	Pope-Hartford, C. R. Horrie	:53 3-5	4.7
7	Rambler, T. B. Jeffery	:53	7.04
8	Wayne, Wayne Auto Co.	:53 1-5	7.25
9	Rambler, J. F. Gunther	:46	10.03

CLASS D

1	Autocar, Geyler & Levy	:53	3.7
2	Pierce, H. Paulman	:34	3.82
3	Pierce, A. McNally	:46 4-5	4.
4	Columbia, Electric Vehicle Co.	:55 4-5	4.05
5	Knox, George A. Crane	:46	4.73
6	Thomas, C. A. Coey	:37 4-5	4.86
7	Stearns, Githens Bros. Co..	:39 4-5	4.91
8	Pierce, M. Beck	:52 4-5	5.96
9	Stevens-Duryea, F. P. Illsley	:39 1-5	6.09

THE TIMERS ON THE TOP OF PERRY HILL

There wasn't a chance of using the wig-wag system on Phillips hill in the afternoon. It is a half-mile stretch, with a turn at the top, so Hayden set to work to wire the hill. He did the work in fear and trembling, but was delighted when he was through to get the welcome tinkle-tinkle at the top. Hayden had run the legs off his car in this work, but he got considerable advertising out of it through Jim Bayless, the megaphone gentleman, who took particular pains to announce: "Here comes Mr. Hayden in his National

WHERE THE CARS WERE SENT AWAY

SCENES ON PHILLIPS HILL

STARTER SIGNALS TO SEND CAR AWAY

automobile,'' each time the Prest-O-Lite man came down the hill. With the electrical system in order the afternoon climb was an easy one for the officials to handle. The cars were sent away at 2-minute intervals and this, of course, took longer than did the morning contests. However, the last car had gone up by 4 o'clock and inside 5 minutes the technical committee had figured out the winners.

It was a spectacular effort, that dash in the afternoon. With a long stretch to get going in and then another level stretch after crossing the tape, the cars all had an opportunity to attain their highest speed. The curve three-quarters way up bothered some and it was at this point that Paul Hoffmann lost fully a second in the big Pierce through skidding. Still, he held his car in control and was enabled to get to the top in :46⅖, which tied the Stevens-Duryea for the fastest time of the afternoon. These two stood out above the others, the next to them being Coey in the Thomas with :54⅘, just ⅕ better than McDuffee did in the Stoddard-Dayton. The last-named car had best time in its class, both morning and afternoon, although closely pushed by the Haynes runabout. In class B the Reo had the best average time, although the Jackson was best of the lot in the morning. The Mitchell was fastest up Perry hill in class A, while on Phillips hill it was the Buick.

Of course it is beyond the range of possibilities to run off an affair like this without a protest and this developed today when W. J. Mead filed an official complaint for the Buick against the Jackson, winner of class B in which the Buick was second. Mead asserts the Jackson was not a stock car in the first place and that the Jackson Motor Co. owned it, not Hagmann & Hammerly, the rules providing the entrant must be the owner. These charges are denied by Hammerly, who asserts the only departure from stock is that the hill-climber was fitted with hub brakes instead of expanding ones. Hammerly claims he was handicapped by the brakes, which locked on him going up Phillips hill. The time showed it, too, for the Jackson was the slowest in its class in this climb.

Two of the cars did not get there in time to take part in the morning event —the Moline and the Elmore. Both made corking good time up Phillips hill and might have been contenders if they had been there on time.

So successful was the event that it is more than probable that it will be made an annual affair. Mayor Chewning, of Algonquin, himself a motorist, has declared the climbs won more friends for the automobile among the farmers than anything else ever attempted. The countrymen came in goodly numbers and saw for themselves that the automobile is not as bad as painted; that while it has terrific speed, yet it is so thoroughly under control that there is nothing to fear. Those ruralites who possess wealth and who long have been contemplating joining the motoring ranks had a chance to see how twenty-six different makes of automobiles actually performed on the road and how they could climb hills. The Chicago Automobile Trade Association is not content to let their campaign end at Algonquin and already Joseph F. Gunther, who might be termed the chairman of the association's racing board, is planning to bring before the association a scheme to run a 1-gallon economy test to wind up the season. The dealers already have had a successful orphans' day, a cracking good reliability run and a double hill-climb, and Gunther wants to top this off with a 1-gallon test. He has inspected the Indiana roads with this object in view and thinks that the scene of the next contest should be Crown Point, Ind., which possesses a ½-mile track which could be used to start the cars on. It is suggested by him that the course could be a short one, coming back for another circuit of the track before 10 miles have been traveled. Of course, it is impossible to figure on finishing on the speedway, but public interest would be greater if the spectators got two looks at the contesting cars. He suggests the middle of October for the test, and at a meeting of the association next week he will ask that he be empowered to go ahead with his latest scheme. Crown Point is some 40 mies from here.

COEY'S THOMAS FLYING UP PHILLIPS HILL

COURSE IS SHORTER THAN IN 1905

Exact Measurement Shows New Vanderbilt Cup Distance to be 279.1 Miles as Against 283 Last Year—Candidates Try Nassau County's Oiled Highways for First Time

New York, Sept. 11—Following a meeting of the racing board yesterday, announcement was made of the official distance of the race. The circuit this year will measure 29.71 miles, or 297.1 miles for the ten laps of the trial and race, as against 283 miles for the ten circuits last year. Drawings for the order of start in the eliminating trial will take place at the Garden City hotel at 9 o'clock next Saturday evening.

The location of the grandstand has at last been made public. It is the same as that of 2 years ago on the occasion of the initial struggle for the international trophy. The point chosen is on the south side of the Jericho pike, about half-way between Mineola and Jericho, a distance of some 3½ miles from each point. It will be built on the south side of the road facing the Hitchcock steeplechase course.

The Frayer-Millers, the Pope-Toledo, one of the twin Locomobiles, and the Christie have been at their training quarters since last week. John Haynes drove down the Haynes last night and Ernest Keeler will pilot his Oldsmobile to camp this afternoon. Ralph Mongini and the Matheson are expected late today or early tomorrow. The Apperson was shipped from Kokomo yesterday. The trio of Thomas Flyers are to be expressed on Friday night and will begin practice on Monday.

Of the foreigners, Elliott F. Shepard arrived by the Lorraine on Saturday. His Hotchkiss cars came by the Burgoyne yesterday. George Heath got here on the Kaiser Wilhelm II this morning. His Panhard and mechanics are due on the next German steamer. He will have his quarters at a cottage he is said to own near the course. It has been said that Ernest Fabry, of the Itala team, is already here. Lancia, Nazzaro and Weilschott are due here Friday night. It is more than likely that the next French steamer, due here Friday, will bring Duray, Clement and Jenatzy and get them here in time to witness the American trial.

Two of the drivers scheduled to pilot American cars have withdrawn at the solicitation of their families. Henri Dolneau, of Lyons, France, will supplant Sidney S. Breese at the wheel of the B. L. M., and Frank Lawwell will drive a Frayer-Miller in place of F. E. Moscovics.

Two catastrophes having greater or less relation to the coming race occurred in the neighborhood of the course yesterday. While Dolneau was out studying the roads with Mr. Lawrence, of Breese, Lawrence & Moulton, in James L. Breese's 60-horsepower Mercedes, in which the latter competed at Ormond last January, while going along a winding road at high speed, the steering gear jammed and the car swerved into a telegraph pole, snapping it. Both were thrown out; Lawrence got off scot free and Dolneau escaped with a cut on the forehead.

The other mishap was the collapsing of the cement four-story garage Robert Graves, who has entered a Mercedes for the cup, was building at Mineola, incidentally to accommodate Jenatzy in his training and the cars of his friends during the races. Three workmen were killed.

The oiling of the course is now in rapid progress at a dozen different points and bad spots in the road are being patched up. As great precautions as possible will be taken to keep back the spectators at congested points. Wire fencing will be stretched for 1,000 feet west and for 200 feet east of the grandstand and also at most of the towns.

CARS ON THE COURSE

New York, Sept. 12—Special telegram—Practice on the Vanderbilt cup course began this morning. Seven of the fifteen cars which are entered for next week's eliminating trial for places on the American team were out at daylight eager to take advantage of the removal of the speed ban during the early morning hours up to 7 o'clock, the limit set by the racing board's rules. They were two Frayer-Millers, a Pope-Toledo, a Locomobile, a Haynes, an Oldsmobile and a Christie. Five of them covered one or more laps. One of the other two was halted by tire troubles and the other by a weak battery. One of the five in its second round met with a mishap which may affect its chances and perhaps even from participation in the trial.

The first driver to bring out his car was Lytle. Indeed so eager was he to get to work early that he took the "K. K. K." —Krug's corner clockers—by surprise as he swung around the turn at Mineola into the Jericho pike in the dark. The next lap, though, the timing route caught him at 37 minutes for the 29.7 miles and two more laps in order at 35 and 37 minutes. The Pope-Toledo had made a run of 89.7 miles in 1 hour 49 minutes, a 50-mile-an-hour average.

Tracy warmed up the Locomobile with a first lap in 39 minutes. On the second lap he threw a tire, but slowed down and escaped without injury to his car. Lee Frayer covered the course in 38 minutes with a Frayer-Miller. Another Frayer-Miller driver, Frank Lawwell, was forced to halt through tire troubles. Walter Christie was brought to a standstill by weak batteries.

Ernest Keeler piloted the Oldsmobile around in 41 minutes, but his try-out came to an untimely end in the next lap. In rounding the Lakeville corner the steering gear is said to have locked or done some other thing it should not have done. The car spun around, ran into a telegraph pole and upset. Keeler and his mechanic, Miller, were thrown out, but escaped uninjured. A bent frame was among the damages reported to the car, which, it is said, can perhaps be repaired in time for more practice next week. A strong effort to do so will be made, at any rate.

All of the Americans and most of the foreigners have already engaged their training quarters, which will be located as follows:

Pope-Toledo—Bull's Head Tavern.
Matheson—Porrier's at Garden City.
B. L. M.—Westville.
Oldsmobile—Westbury.
Haynes—King's at Mineola.
Christie—Beckman estate on Jericho pike.
Locomobile—Lakeville.
Maxwell—Jericho pike east of Mineola.
Thomas—Krug's at Mineola.
Frayer-Miller—Holman estate west of Mineola on Jericho pike.
Apperson—Williston estate.
Matheson—Poirrier's at Garden City.
Fiat—Poirrier's at Garden City.
Itala—Poirrier's at Garden City.
Mercedes—Keene at Cedarhunt and Jenatzy at Robert Graves's garage at Mineola.
Darracq—Glenwood hotel.
Panhard—Heath cottage at Mineola.
Clement-Bayard—Johren's hotel at Mineola.
De Dietrich—Charles Raoul estate.

THOMAS CAR SHOWS SPEED

Buffalo, N. Y., Sept. 11—Special telegram—Hubert Le Blon took the Coey Thomas out for its first trial today, and it is reported that it showed 2 miles at the rate of more than a mile in 30 seconds. This speed was maintained for a trifle more than 4 miles on the slightly uneven macadam road running between Lockport and Main street, Buffalo. As a result, the sprockets were removed from all three of the Thomas cars tonight and will be replaced in the morning by a set that will not allow the cars to travel more than 100 miles an hour. This was done as a result of the advice of Gustave Caillois.

TWO PROMINENT CANDIDATES

In opposition to what might be termed sound judgment, the Pope people have turned out but one racing machine for the forthcoming contest for the Vanderbilt cup, while other automobile manufacturers have entered as many as three cars. It was originally intended by the Pope people to build two or three racing machines for the big race, but, even with the enormous capacity of the plant, this was found to be quite impossible. It might be mentioned in this connection that this is an especially busy season on touring cars for the Toledo concern, and further that the completion of only one racing machine for the race was necessarily delayed in the chrome nickel-steel construction of the car, this class of steel being exceedingly difficult to machine. The new racer has been subjected to many severe road

tests, the results attained being far ahead of the sanguine expectations of the Pope company. Since the Vanderbilt race of a year ago a force of able mechanics put in its entire time in constructing the car. This is the first car ever constructed by the Pope-Toledo people with a four-speed selective gear transmission. The engine in the new racer has four cylinders, the heads being cast in pairs, each pair being provided with individual copper water jackets. The valves are in the head and are mechanically operated by walking beams, with one set of four cams and four push rods instead of eight, as heretofore. Ignition is attained by means of gear-driven high-tension magneto. The engine is designated as having a capacity for 120 horsepower. The racer covers a wheel base of 104 inches with 34-inch wheels, and is geared to 25, 50, 75 and 100 miles an hour on the road.

The Locomobile racer entered in the eliminating trial for the selection of the American team is rated at 90-horsepower. The motor has 7¼-inch bore and 6-inch stroke, and make-and-break ignition with low tension magneto. The intake valves are located on the top of the cylinders in aluminum housings and are operated by walking beams, the tappets for which are given vertical motion by cams on the admission camshaft, which is enclosed and driven by a gear. The ignition cams are also located on the intake camshaft. The pump and magneto are located on the exhaust side of the motor and run on a shaft driven by a gear in mesh with a gear on the exhaust camshaft. The timing gears are located at the rear of the motor. The transmission provides three speeds and reverse with direct drive on third speed. The final drive is by double side chains on the rear wheels. The running brake is located on the differential shaft and is operated by a foot pedal, and the emergency brakes are carried on the rear wheels and are operated by a hand lever.

AFTER A SAFE TRACK

Atlantic City, N. J., Sept. 10—Last week's races, while admittedly mediocre, proved that interest in the sport is not dying out. Many enthusiasts believe, however, that a constant succession of straight-away, short-distance dashes, in which the spectator sees the contestants but for a few short seconds, is not satisfying. It may be safe for the contestants, but from the spectator's viewpoint there is something lacking. Hence a movement, immediately following the conclusion of the races, for the establishment of a huge oval or circular track, about 2½ miles in length, certainly not less, on a plot of ground south of this city and which could be easily put in shape, being already practically level. It is argued that the contesting cars on such a track will always be in sight from the stand, and even if not inclosed the receipts from reserved seats would be sure to meet the expenses.

CUTS THE OLD RECORD

Carris in Franklin Runabout Reduces Chicago-New York Time to 56 Hours, 58 Minutes

New York, Sept. 6—The Chicago to New York record now belongs to the Franklin, the same six-cylinder, 30-horsepower Franklin, by the way, which on September 16 completed in this city a record transcontinental run in 15 days 2 hours 12 minutes. The new figures from Lake Michigan to the Atlantic ocean now stand at 56 hours 58 minutes, which supplants the 58 hours 43 minutes' record made by Bert Holcomb and Lawrence Duffie in a Columbia, which has stood despite numerous attacks upon it since it was made in October, 1904. The Franklin transcontinental crew engineered and carried out the feat. L. L. Whitman laid out and captained the run. C. S. Carris, M. S. Bates, James Daley and C. B. Harris took alternate tricks at the wheel. The Franklin "time-busters" reached here at 11:58 o'clock today, or, to take the exact time handed out by Fred Wagner, of Motor Age, who officially received them, 11:58⅘. They had been sent away from Chicago by Motor Age men at 3 o'clock, New York time, in the morning of the day before yesterday. So it was that the Franklin beat the Columbia by 1 hour 45 minutes, or 1 hour 44⅘ minutes according to Wagnerian chronology. The route followed was via Cleveland, Buffalo, Syracuse, Albany and Poughkeepsie. The cyclometer reading was a bit under 1,200 miles. Holcomb made his record over the same course to Buffalo, while he reached this city via Binghamton, Kingston, Newburg and Weehawken, the cyclometer showing 1,127 miles. In the night run out of Chicago the car ran into an unlighted wagon and broke its bonnet and fan. In the run from Erie to Buffalo in the dark the machine was ditched and a pan broken. Between Little Falls and Schenectady a heavy fog was encountered. Weak batteries gave trouble several times. Erie was reached at 3:30 a. m. on Wednesday, Syracuse at 8:24 p. m. the same day, Albany at 5 a. m. and Poughkeepsie at 8:15 a. m. today. It is probable that Bert Holcomb will soon made an attempt to regain the lost record for the Columbia, he having repeatedly expressed his belief in his ability to beat 50 hours between the two cities.

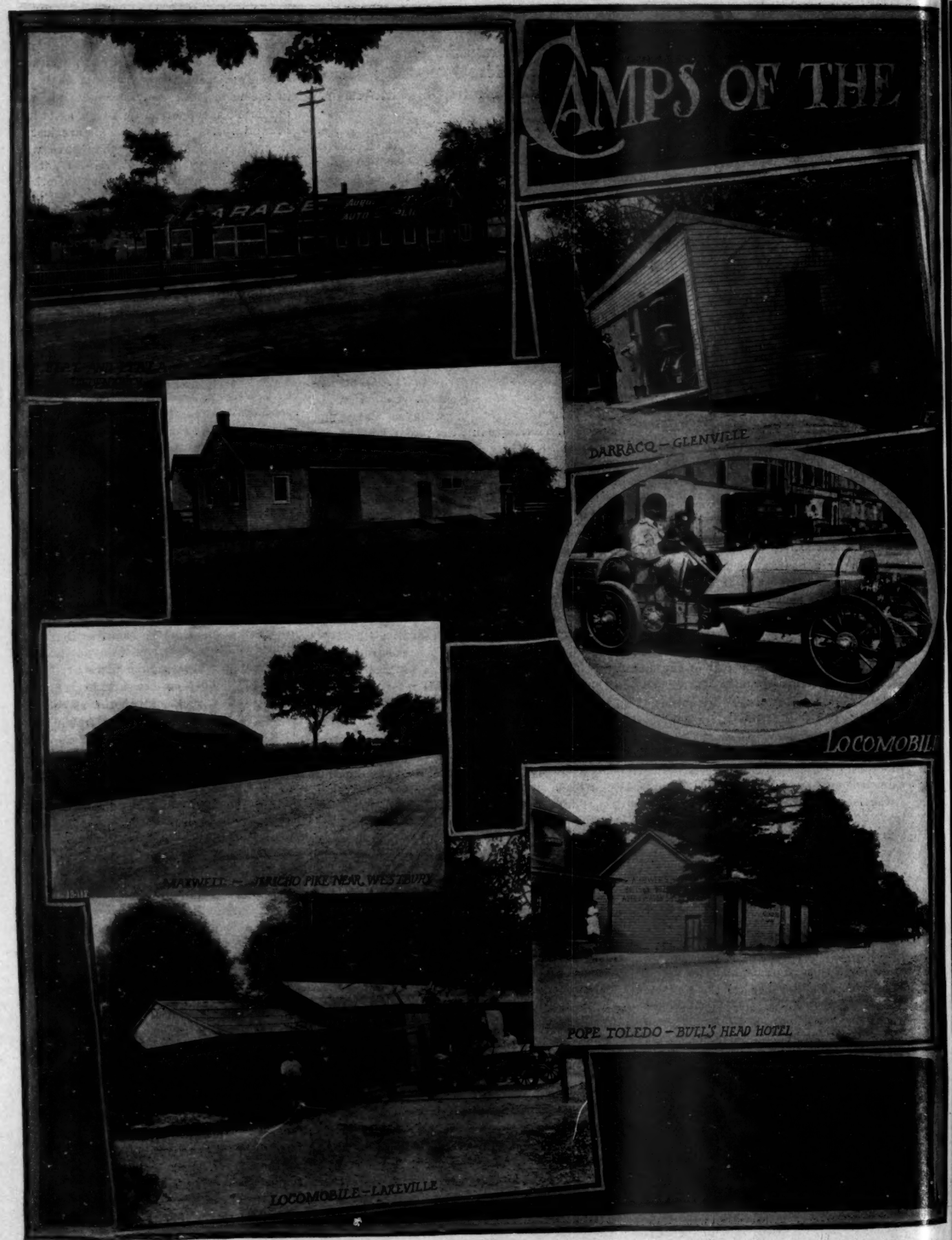
Holcomb is, in fact, already stirred up over losing the mark, and it is reported that no sooner had the Franklin reached town than W. W. Burke, manager of the Columbia's New York branch, set about getting in touch with M. J. Budlong, president of the Electric Vehicle Co., with the object of securing the latter's O. K. to the scheme to send Holcomb over the route again in an effort to put the record to the 50 hours he asserts the Columbia can do. In all probability there will be something doing along these lines, for while the Electric Vehicle people have no Vanderbilt bee buzzing the Chicago-New York mark is the apple of their eye in the record line and they certainly will not lose the opportunity to go after the Franklin. The Syracuse people are just as determined to hold what they have won, and it is asserted that Carris did not extend himself, preferring to keep something back so he could try again successfully in case someone beat his time.

CHANGE IN N. A. A. M. OFFICERS

New York, Sept. 10—At the regular monthly meeting of the executive committee of the National Association of Automobile Manufacturers last Wednesday, ten members being present, Ezra E. Kirk was elected a member of the executive committee in place of E. R. Thomas, resigned. C. T. Jeffery, representing Thomas B. Jeffery & Co., was elected to membership in place of G. W. Bennett, resigned. The retirement of Mr. Bennett created a vacancy in the first vice-presidency, resulting in the following changes: A. L. Pope, first vice-president; S. D. Waldon, second vice-president; Thomas Henderson, third vice-president. C. A. Benjamin, of the Babcock Electric Carriage Co., of Buffalo, and Colonel George Pope, of the Pope Motor Car Co., of Hartford, were elected to membership in the association. Amendments were made in the rules governing the allotment of space at the Chicago show, so that positions will be determined by a drawing which will probably take place at the association's office on the morning of October 3 and 4, members of the association taking part in the first day's drawing and other applicants in the second day's drawing. The gallery will be occupied by members of the Motor and Accessories' Manufacturers, as heretofore. Application blanks and diagrams will be mailed to the trade about 10 days hence.

BUICK REACHES THE COAST

San Francisco, Cal., Sept. 9—Special telegram—The transcontinental two-cylinder model F Buick, carrying R. H. Little, C. D. Hagerty, Norman DeVaux and J. C. Whittle from New York to 'Frisco, arrived here tonight at 6:45, having consumed 24 days 8 hours 45 minutes in covering the distance. Notwithstanding the almost impassible condition of the muddy mountain roads, the car is in splendid condition and but little the worse for wear despite the terrific experience through which it has passed. The time made, while considerably over the original schedule, is remarkable in many ways, principally in that it creates a westward automobile record between New York and 'Frisco in addition to the fact that it is the first car with tonneau, carrying more than two passengers, to have ever successfully accomplished the trip in either direction.


CAMPS OF THE
DARRACQ – GLENVILLE
LOCOMOBILE
MAXWELL – JERICHO PIKE NEAR WESTBURY
POPE TOLEDO – BULL'S HEAD HOTEL
LOCOMOBILE – LAKEVILLE

CUP CANDIDATES

APPERSON – JERICHO PIKE NEAR THE OLD STAND

POPE-TOLEDO

– BEERMAN ESTATE, JERICHO PIKE

MOTOR AGE

309 Michigan Avenue, Chicago
Published Every Thursday by the Trade Press Company
N. H. Van Sicklen, Manager — Chas. P. Root, Editor
Subscription Two Dollars a Year
Foreign Subscription Four Dollars
The Western News Company of Chicago and Its Branches Supply News dealers
New York Office, 29 West Forty-second Street
Official Organ of the American Motor League
Entered at the Chicago Postoffice as Second-Class Matter.

HAPHAZARDNESS—A SIGN OF WEAKNESS

HAPHAZARDNESS—here an economy test, there a hill-climbing competition and yonder a reliability run without uniform rules regulating the several economy tests, the numerous hill-climbs or the various reliability trials—is a slow path to progress. Haphazardness, best defined as "come a little, go a little and advance nothing," reminds one of the would-be discoverer who went out to discover nothing and who went nowhere and discovered what he was after. The American motoring public and motoring organizations have in all cases except the Vanderbilt cup race been such discoverers, meeting with like success. The Vanderbilt cup race proves something—which is the fastest and most reliable car, providing the tires play square. Its rules define the weight limit and special cars, constructed with the requirements of the race in view compete. But we are not running the Vanderbilt cup race every week in the year. We have not a Long Island course in every state in the union, and we have not every one of our 150 motor car builders designing and building special racing or competing machines for an event of every week in the year. Eight makers build for the Vanderbilt cup, the remaining 142 do not; but they build cars, just the same, and must we with arms folded, faces downcast, trudge along content with haphazardness and no uniform method of competition by which these 142 also-rans can be compared, their measurements taken, motor strength estimated and reliability discovered? Yes, there are methods by the score for making such tests, but they lie dormant. The motorists and motoring organizations have failed in discovering them, as would any other organization that set out nowhere to discover nothing. Because there is no discovery is no reason that there is no method. Perhaps when Horace Greeley penned those immortal words, "Go west, young man, go west," he little deemed the evolution that would follow in the wake of such migrations. If the west has been a little behind in motoring it has at last arisen, it has started discovering, it has set out to find something and has made a few discoveries. Last week a couple of Chicago motoring organizations held a hill-climb. That was nothing out of the way. Plenty of other cities hold hill-climbs, but the way Chicago motorists decided upon the winners in each class was something out of the way. They used a formulae for handicapping the contesting cars, making the test not to the swiftest but to the best. Any car with six or eight cylinders should climb a hill in fewer seconds than one with four cylinders, unless the makers of the big fellows are incompetents. The Chicago formulae took cognizance of three factors—weight of the car, cylinder capacity in cubic inches and time in seconds in climbing the hill. The aim was to find out the car that does most, cubic inch for cubic inch of cylinder capacity, with a certain load in a certain time. Such a formula could be used in Maine and California and by taking into consideration the length and percentage of the grades it would be possible to follow throughout an entire season what a certain make of car does on each hill. The information would be valuable, it would be a guide to buyers, as makers may fool most of the buyers most of the time but they cannot fool all of the buyers all of the time. Have a uniform handicapping formulae, the one referred to or any other; have it used in every competition, and don't stop here—establish uniform rules for economy tests that will apply irrespective of road conditions, have similar rules for reliability tests. This done, the discoverers will start after something—the best car—and they will find the object of their quest.

Start a new chapter—there are plenty of incidents in motoring annals to warrant it. Fill up the first few pages on carbureter tests. The Automobile Club of France has found this a most valuable competition, sufficiently important to warrant its continuance after a run of 4 years. Collect from every carbureter maker a stock sample test each out under constant and varying loads for successive hours on a standard engine yoke to a dynamo and supplying a bank of electric lights.

Four steps lead to knowledge as to the best—examination, comparison, abstraction and deduction. Examine first the several carbureters as suggested; compare their results, abstract the best out of each and generalize these best features into the perfect carbureter.

Add another chapter. Testing the various mufflers as to the back pressure created by them; holding competitions to ascertain the best wearing tires; conducting contests in the hope of finding out which magneto or storage battery gives the best result; arranging tests to discover the premier anti-shock absorber; promoting trials designed to trace up the most efficient radiator construction. The story could be continued, and chapter after chapter added.

ORGANIZATIONS KNOWN BY THEIR WORKS

THERE are in this country two national automobile organizations and innumerable state affairs. Every city of any importance has an automobile club and many of them have trade organizations. Notwithstanding all these organizations of motorists little practical work has been accomplished along lines that have been laid out. The American Automobile Association has promoted a big tour and is about to conduct a big road race; the American Motor League has given the world a number of automobile tour routes; some of the state associations have put up a few signboards and defended a few members who have fallen into the clutches of grafting constables. No great amount of good has been performed along the line of good road work and fair legislation—possibly the officers and members have been too busy in pursuit of motoring pleasures to think of what might be accomplished for the good of the fraternity at large. It is reasonable to suppose that were the automobilists acquainted with the fact these organizations are accomplishing some good work in the directions named their membership lists would be voluntarily swelled many times by the names of those who today do not appreciate the fact that any particular amount of good is being accomplished. If these organizations have accomplished any reasonable amount of good their members ought to be told of the fact through the medium of the press, and their officers are respectfully invited to tell in some summarized form through the columns of Motor Age what that work has been. No time ought to be lost by the officials to tell the automobile community what is going on in the inner circles if the organizations expect the support, both financially and morally, of all automobilists. Will Mr. Farson and Mr. Potter and the others make answer?

JUMP SPARKS

If Algonquin, Ill., was never on the map before the hill-climb of last Thursday, it is today—with the motorists, at least.

This tells the story in a few short words: In July there were 266 cars exported and during the same period there were 91 cars imported.

A few more transcontinental dashes and road maps from New York to San Francisco will be useless—the trail will be so broad that even a blind man could find his way.

What's the matter with changing the date of the Vanderbilt cup race to a time when President Roosevelt is known to be on Long Island? It is an even bet he and the young Roosevelts would peek over the fence to see the sport, even if the president doesn't seem to care for motoring.

Many and varied are the complaints made to the average garage superintendent, but it has remained for a Washington, D. C., woman automobilist to make one of the most novel complaints on record. Entering one of Washington's best garages the other day she knocked the superintendent into a cocked hat by asking him to see that her car was fumigated and thus rid it of millions of fleas. Investigation showed that the cushions of the car were literally covered with the small black insects and the woman automobilist said they had made life a burden to her. It has since developed that there is an epidemic of fleas in the capital city and the insects seem to have found snug resting places in the soft upholstery of automobiles, to the great annoyance of the occupants.

EFFECT OF A HILL-CLIMB ON NATIVES

By the way, who is to hold that Glidden cup for what remains of the year?

It is to be hoped there are no weeds among all the automobile plants that are springing up around the country.

There is one good thing about the Chicago dealers—they are original to some extent, even if they were a little slow in getting into the promoting game.

The Long Islanders are getting onto the ways of the world. Last year a motorist could find a place to put his car in a parkway for a mere $5; now it is reported the price is $40. Have the residents formed a union?

Down in St. Louis they are to have a series of lectures during the coming winter for automobile drivers. The St. Louis motorists could do better work for motoring if they would give a few lectures to their Missouri farmers and legislators.

Ten days hence Americans will know a whole lot more about racing car construction and race driving than they do today. And there will be a sadder and wiser lot of makers and designers than there are today. In the meantime the foreign competitors are not free from doing a little hard thinking by any means.

Philadelphia is crying for a 2½-mile track for automobile racing purposes. Such a course would not be so bad. What Motor Age has protested against in the way of track racing was the narrow speedways where it was dangerous to run more than two cars at a time and with only two cars in everyone knows that the competition end of it is a farce.

Pretty soon it will be as fashionable to try for the Chicago-New York record as it is to make a dash for the north pole.

The reports that a syndicate has been formed to operate a 2½-mile track to do away with beach racing must be discouraging to Senator Morgan.

Those Chicago dealers have an eye for business in sprinkling their contests in the country adjacent to the city, thereby not only educating the ruralites but drumming up a little business as well.

The announcement that the Mercedes people had given up racing came as no surprise to the knowing ones. As a matter of fact the Mercedes people have been so far out of the racing game for a couple of years that giving up racing could have been only a relief.

Daily newspapers are not as motorphobistic as many imagine and the cry that the motoring enterprises do not receive the support of the press counts for little, especially in Chicago, where the success of the recent Algonquin hill-climb is largely credited to the boosting of the dailies. One who kept tab found out that in less than a month the nine papers in the Windy city devoted over sixty columns to the venture of the Chicago Automobile Trade Association and the Chicago Automobile Club. The various sporting editors threw open their columns to the dealers and kept the public advised of every move that was made and in most cases gave the articles display heads. "Do something" and it is not hard to get a helping hand from the press.

THE WEEK

First handicap hill-climb ever promoted in America successfully run off at Algonquin, Ill., by Chicago Automobile Trade Association and Chicago Automobile Club, Autocar winning in class A, Jackson in class B, Queen in class C and Pierce in class 4; Pierce carries off time honors.

Vanderbilt cup course is thrown open to American candidates for practice; most of Yankee cars now on Long Island preparing for trial next week; gossip of the big race.

Forty-nine cars are nominated for England's Tourist trophy race on Isle of Man September 27, winner of which will be decided on gasoline consumption.

Franklin runabout reduces Chicago-New York record to 56 hours 58 minutes; Holcomb may try to regain mark for the Columbia.

Scheme in England to float trust among continental concessionaires for purpose of maintaining prices in Great Britain.

Uncle Sam's officials give interesting information on trade conditions in Spain, Brazil and Belgium.

Buick expedition reaches Pacific coast after 24 days 8 hours 45 minutes on the road.

COMING EVENTS

September 9-20—Automobile meet of Pallenza, Italy.

September 15-16—Mount Ventoux hill climbing competition, France.

September 17—Tourist trophy race, Isle of Man, A. C. of Great Britain.

September 18—Touring car competition of Provence, France.

September 22—American eliminating trial for Vanderbilt cup.

September 23—Semmering hill climbing competition, Austria.

September 23—Auto-Cycle Club of France cup race.

October 1-2—Automobile parade and carnival, St. Louis Automobile Club.

October 5-14—Leipzig exhibition, Krystall Palast, Germany.

October 6—Vanderbilt cup race, Long Island. American Automobile Association.

October 7—Chateau Thierry hill climb, France.

FORTY-NINE CARS IN

Big Field Nominated for Second Annual Tourist Trophy Race, Isle of Man, on the 27th

London, Sept. 1—Forty-nine cars have entered the second annual Tourist trophy race, which in reality is an economy and reliability test, and which takes place on the Isle of Man September 27, which last year was won by John S. Napier in an Arrol-Johnston. Not much is known of the cars that have been nominated, the makers showing a singular coyness about giving out particulars. The coyness in divulging details is differently accounted for, but it will be taken for granted that it arises out of a desire to prevent trouble rather than any disinclination to disclose the peculiarities or improvements effected in each design. So much dissatisfaction has arisen over the manner in which certain cars have been, to put it plainly, faked up for competition purposes, that it is known that the automobile club has determined in this instance to see that the strict letter of the rules is not violated by any car permitted to start. Not only will entrants have to satisfy the club officials that the weight of their chassis is not less than 1,300 pounds or more than 1,600 pounds, and that it is capable of starting from a standstill on its top speed on a level road, but each design will be overhauled to discover any fitment or lack of fitment which can truly and reasonably be described as foreign to or necessary to an ordinary touring car. Moreover the most exact measurements are stipulated for in the entry form, and no car will be permitted to start in which any undeclared variations from those particulars is discovered. This is expected to create quite a thinning in the ranks of the entrants, but rumor is always of an exaggerated turn of thought.

Instructions to competitors have just been issued by the automobile club officials, as follows:

Owing to the large number of entries for the race, it has been decided that the cars must be presented for weighing and examination on Tuesday, September 25, at 10 a. m. at the club enclosure, Alexander drive, Douglas. The enclosure will be opened at 8 a. m. on the 25th. Any car arriving after 10 a. m. will be ipso facto disqualified. After entering the enclosure, the cars will remain under the sole control of the club until the start of the race, and they will not be available for tuning-up, adjustment, or any other purpose until the morning of the race, and then only under supervision.

The race will take place on Thursday, September 27, in the Isle of Man, over a course about 40 miles in length, via Quarter Bridge, Union Mills, Peel, Kirkmichael, Ballaugh, Sulby, Ramsey, Mountain Road, and Douglas. The cars will be required to make four complete circuits, making a total distance of about 160 miles. The cars will be timed over each circuit.

The speed must be reasonably reduced in passing through villages and at other points, which will be marked at the beginning by a red flag and marked at the exit also by a red flag. The start will be made at 9 a. m. and the cars will be started at intervals of 1 minute.

No car must under any circumstances pass another in a village or between other distances marked by the red flags, unless the car passed is in obvious difficulties or is, in the opinion of other competitors, going at such a speed as unreasonably hinders them.

Any car which stops for any cause whatsoever must immediately draw close in to the left-hand side of the road. Any competitor disobeying this regulation will render himself liable to disqualification. The entry list is as follows:

No.	Entrant	
1	John S. Napier	Arrol-Johnston
2	A. Rawlinson	Darracq
3	A. Rawlinson	Darracq
4	C. S. Rolls	Rolls-Royce
5	C. S. Rolls	Rolls-Royce
6	Warwick J. Wright	Minerva
7	D. Citroen	Minerva & Br'ne
8	T. B. Browne	James & Browne
9	C. Harman Wigan	Vinot
10	John S. Napier	Arrol-Johnston
11	Alec Govan	Argyll
12	Alec Govan	Argyll
13	Harry Smith	Rover
14	Albert Brown	Brown
15	A. Mosses	Clement
16	Claude Watney	Pipe
17	T. C. Pullinger	Humber
18	Edward Powell	Humber
19	*Captain W. E. D. Owen	Aries
20	*Captain W. E. D. Owen	Aries
21	R. L. Jefferson	over
22	F. Guy Lewin	Peugeot
23	J. Ernest Hutton	Berliet
24	J. D. Siddley	Siddeley
25	R. R. Brown	Siddeley
26	J. Ernest Hutton	Berliet
27	Tom Thornycroft	Thornycroft
28	E. Lisle	Star
29	Captain H. H. P. Deasy	Deasy
30	E. W. Lewis	Deasy
31	Gordon Uswar	Minot
32	J. Percy Dean	Scout
33	J. Lisle	Star
34	C. H. Dodd	Speedwell
35	J. Mayfield	Climax
36	Robert Burns	Swift
37	W. L. Hardman	Hardman
38	Hugh P. MacConnell	Bianchi
39	Arthur McCormack	Gladiator
40	Sidney Straker	Straker-Squire
41	L. R. L. Squire	Straker-Squire
42	Christopher Hill	Climax
43	Harold Bruce	Metallurgique
44	A. C. Godwin Smith	Armadale
45	Hugh P. MacConnell	Rapid
46	Turberville Smith	Academy
47	Percival L. D. Perry	S. C. A. R.
48	W. King Perrens	Vici
49	J. Lesmoir Gordon	Florentia

*The Aries cars have, it is stated, been withdrawn.

MILWAUKEE'S ORPHANS' DAY

Milwaukee, Wis., Sept. 6—Two hundred and fifty inmates of the Protestant and St. Rose's orphanages were given an automobile ride and picnic by members of the Milwaukee Automobile Club today. The event was the second of its kind here. The procession, headed by Mrs. H. F. Norris with a carload of youngsters, moved down lake drive and followed the long way around until Washington park was reached. After indulging in various games and visiting the zoo the little orphans enjoyed a bountiful lunch. Late in the afternoon they were returned to their institutions in automobiles.

NOW FOR NEW ONES

Busy Autumn Line in Company Promotion Expected in England—Metzger in London

London, Sept. 1—From all appearances England seems to have a prospect of a busy autumn line in company promotion. Several of the flotations which have been hung up since spring, by reason of the state of the money market here, will, it is asserted, come out about the beginning of October, and if they go well or, rather go at all, in all probability a whole series will be launched, taking us well over the show period. Among those expected to be early on the scene is a proposal to form a trust among the sole agencies and concessions held for the leading continental motor cars in this country. What particular reason lies at the bottom of this suggestion is difficult to ascertain, but it probably has something to do with an endeavor to maintain prices. It is evidently expected that on the whole there will be a falling away in this direction for 1907. Continental manufacturers are not, however, in a position to meet this movement with any satisfaction, as most of their factories are by no means organized or equipped in the same fashion as is now the case in this country and is the case in America. There is more hand work, less machine work, because less standardization, and more individual fitting with the general run of French cars, than is considered good factory practice in this country; consequently it is not possible to produce at the same figures. The idea underlying the combine is thus to meet the reduction of price expected from British manufacturers. The combine to hold continental prices at their present level is actuated by the assumption that people who invest in cars at $2,000 to $4,000 are not so much concerned to save $250 or so, as desirous to be certain of having the proper article and proper attention. Customers might save $250 by going over to France and buying cars there, but if there is a combine here they would have to go to France for all their replacements, etc., as well. In other ways the idea would be a commercial advantage, but those with experience are not at all certain that the idea will succeed, simply because that experience has shown that bodies of this kind are unwieldy, have tremendous possibilities in the way of leakage, and, owing to local competition, have variation in prices which ends in one depot competing against another.

William E. Metzger, general manager of the Cadillac Co., of Detroit, Mich., who has been spending a few days in London, has been giving some particulars regarding the export policy of the Cadillac company. He states that 1,500 four-cylinder Cadillacs will be turned out for 1907 and that over 5,000 single-

cylinders will also be made. According to Mr. Metzer, the six-cylinder car is not likely to cut a large figure on the American market, but he is sadly mistaken if he thinks it is not going to do so on this side. He considers it a car for the wealthy man only and, although Great Britain may not have as many wealthy men as there are in America, it has quite sufficient to keep the makers of the really good six-cylinder car busy. The point is that no new manufacturer can hope to do very much in this type. The people who buy six-cylinder cars buy names with them, and when that is done, there is no more trouble to be apprehended with six than with four cylinders, so far as the owner is concerned. He does not very much care how much trouble the chauffeur has got—he is paid for that.

PRAISEWORTHY IDEA

St. Louis, Sept. 10—The St. Louis Automobile Engineers' club is arranging for a series of fall and winter lectures and demonstrations dealing with all the problems that confront the practical chauffeur. The primary object of the lecture course is to educate and elevate the standard of the drivers. Recent severe criticism in the daily newspapers of chauffeurs whose reckless driving resulted in serious accidents has prompted the members of the club to make a determined effort to bring the drivers into better repute. The club was organized 9 months ago and out of seventy applications for membership has admitted only seventeen. The other applicants were rejected because they failed to pass the rigid examination. No member is admitted in the club who is not a thorough mechanic and a skillful driver. All the members of the club, who are not themselves dealers and agents, are employed at salaries ranging from $125 to $175 a month. John Bledsoe, driver for the late Corwin H. Spencer, is president of the club. W. L. Patterson, who by the way was the builder of one of the very first automobiles ever made in St. Louis, is vice-president, and Ollie Savin, manager of the Union Automobile Co., is secretary. The lecture course will begin early in October.

P. PIERCE CYCLE MAGNATE

Buffalo, Sept. 10—Percy P. Pierce has announced that he has quit the automobile business to devote his exclusive attention to the bicycle business as president of the Pierce Cycle Co. The company was recently incorporated with the following officers: Percy P. Pierce, president; W. B. Colburn, secretary and treasurer; G. N. Pierce, Charles Clifton, Moses Shire, directors. The company will manufacture Pierce bicycles at the Hanover street factory, in which the Pierce Great Arrow automobiles are now being built. About November 1 this automobile business will be transferred from the Hanover street plant to the new Pierce factory on the site of the old Pan-American grounds.

TIPS FROM UNCLE SAM

Government Trade Promotion Bureau Discovers Good Trade Chances in Other Lands

Washington, D. C., Sept. 10—The trade promotion bureau of the federal government has received reports anent the automobile industry in various foreign countries, and the facts therein contained may be profitable to American manufacturers who are seeking foreign outlets for their products. The only automobiles, with a few exceptions, in use in Spain are of French or Spanish make. A few Oldsmobile runabouts, and perhaps a half-dozen German cars, have found their way into Alfonso's country, but all the others are French or Spanish. There is only one automobile factory in Spain, but it is a good one and is rapidly taking possession of the Spanish market. It is the Compania Hispano-Suiza, of Barcelona. The chief engineer and the man who founded the plant is a Swiss. Less than 3 years ago he succeeded in getting the necessary capital for establishing the business, and the enterprise was successful from the beginning. Last year, besides spending large sums in enlarging the works and in all sorts of betterments, the company paid its stockholders 11 per cent net dividend. Until this year it turned out only 14 to 18 and 20 to 24-horsepower cars. This year, however, it has begun to make 40-horsepower cars. The secret of its quick success, perhaps, lies in the fact that it builds its cars with an eye to their use on the bad roads of Spain. Certainly in no well-known country of Europe are the roads generally so bad as they are in Spain. Some of the French makers, notably Berleit, of Lyons, appreciating these conditions, have built high-swung cars specially for Spain, and as a consequence the Berleit cars in particular are more seen in Spain than those of any other foreign make. As yet there is no very general demand for automobiles in Spain; there is, however, a good demand for cars of high class of from 20 to 40-horsepower, and it is clear that this demand will grow steadily. Whether or not cheap cars of 8 to 10-horsepower will ever be popular there is problematical. The roads are so bad and frequently so hilly that, as a rule, high-powered cars are required. Moreover, the introduction of cheap cars is going to be considerably hampered by the new tariff, which has almost doubled the customs duties. Until the Hispano-Suiza began to manufacture cars, this duty was about $190 on a four-seated car, but the new company, claiming protection as an infant industry, succeeded in getting the rate nearly doubled in the tariff which is now in effect. The customs duties, it should be stated, are assessed on the weight. The maximum rates are as follows: Any open automobile of any sort would pay 19.3 cents per 2.20 pounds, and in addition $38.60 for the coach work. Thus a car weighing 2,200 pounds would pay, if an open car, $193 on the weight and $39 on the body, or $232 in all; if it were a closed car it would pay $62 on the case, or $246 in all. When a car weighs more than 2,200 pounds, the duty on the weight is 20 per cent higher, or 24 cents per 2.20 pounds, but the duty on the coach work is always the same.

At the present time there is a very encouraging outlook for American cars at Rio de Janeiro, Brazil. There has been a building boom in progress in that city for some time and it has taken the form, among others, of a boom in the construction of several fine avenues and a boulevard system which contemplates something like 17 miles of asphalt drive along the bay. Naturally such an opportunity for automobiles is attractive, and there are not only a large number of cars now in use, but the number is rapidly increasing. In line with the general trade situation there, the natural disposition of Brazilian buyers has been to go to Europe for their cars, but there are a number of good American cars in Rio, and it seems probable that all that is necessary for American trade in this line to prosper is proper efforts to sell American cars. It is a matter of fair competition in a fair field, and that American manufacturers have not sold more cars is due to the lack of efforts in that behalf. In a city which, with its suburbs, reaches well toward a population of a million, there is a considerable field for further effort. There is a similar, though smaller, field in most of the cities of Brazil and, with the general wave of improvement now sweeping over these cities, there will likely be increased demand for automobiles.

Reports from Belgium are to the effect that the manufacture of automobiles is very active in that country, especially as concerns touring cars. For the last 2 or 3 years Belgian business houses have been making a larger use of automobiles for commercial purposes, and it is understood with unvarying success as regards cost of keep and working capacity. Most of the cars in use are of Belgian and French manufacture.

MATIN TOUR ENDS

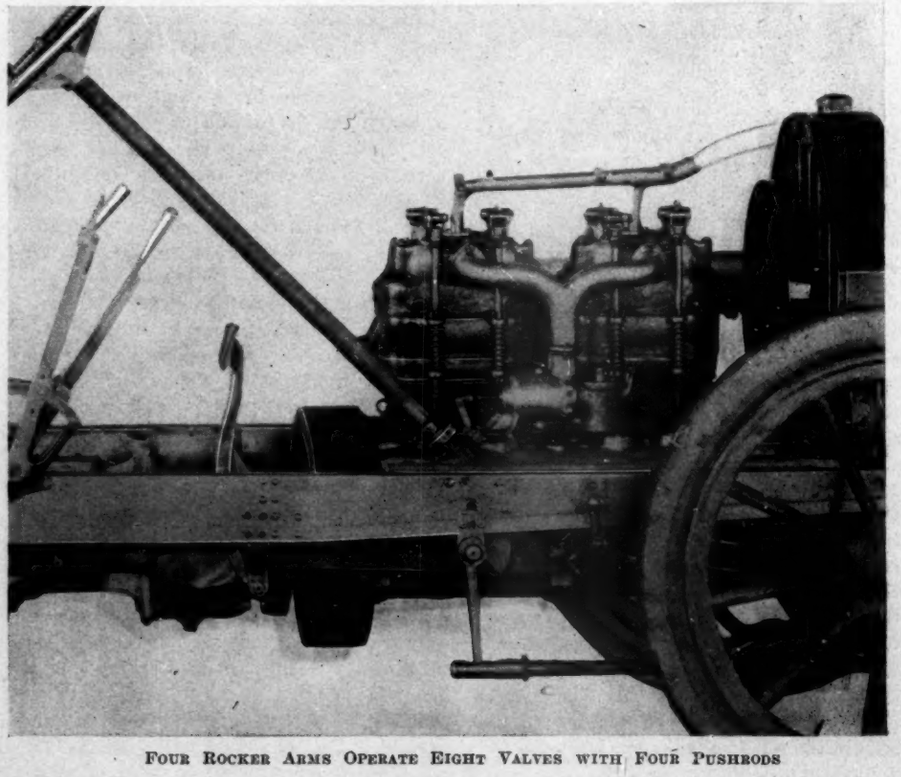
Paris, Aug. 28—Of the forty-seven starters for the Matin cup, about thirty fatigued and weary drivers brought their machines back to Paris. The first eight in the final classification are those which received no penalty marks, and these include three de Dion-Bouton cars, 18, 12 and 24 horsepower respectively; a 12-horsepower Darracq, a 12-horsepower Cottereau, a 16-horsepower Bayard, and a 40-horsepower Mercedes, among which the $5,000 offered by the Matin, as first prize, will be divided. The spring wheel cars did very well, although none finished the tour.

POPE-TOLEDO, TYPE XV, FOR THE COMING SEASON, IS A BALL BEARING CAR FROM RADIATOR TO FUEL TANK

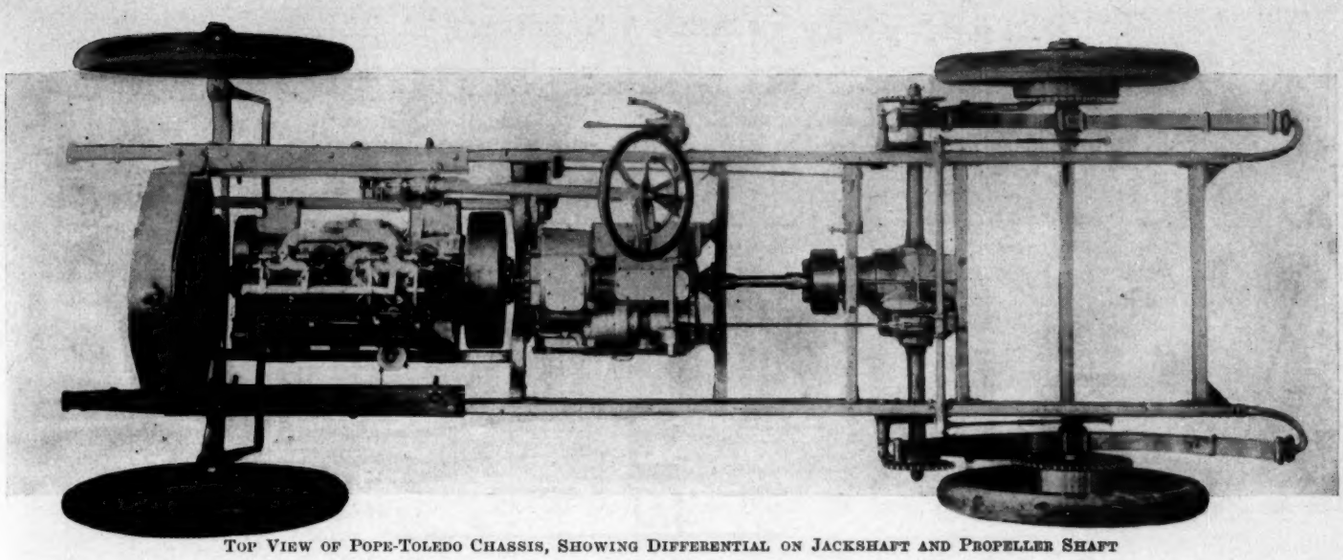
CHROME nickel steel is the Alpha and Omega of the new 1907 Pope-Toledo touring car, and as its running mate Col. Pope has selected Deutche Waffen Fabrik, familiarly known in America as Hess-Bright or D. W. F., ball bearings. Which receives the greater prominence is difficult to judge. Chrome nickel steel constitutes the stationary front and rear axles; every driving shaft, from the crankshaft to propeller shafts and shafts in the gearset, is made from it; the gears own it as their sole constituent; steering knuckles are forgings of this metal; so are the back spring hangers, the jackshaft brackets and the valves and valve-operating parts; in short, it is as difficult to get away from chrome nickel steel as it was to find it in domestic cars a couple of years ago. Deutche Waffen Fabrik ball bearings are as irresistible. Three races of them greet you in the motor, they playing that omni-important rôle of carrying the crankshaft. This fact alone is of sufficient prominence to brand the introduction of the new Pope one of the motoring topics and places the car with such company as Hotchkiss—the ball bearing pioneer of Europe—Mercedes, and the Stevens-Duryea six. The D. W. F.'s—abbreviated—carry all shafts in the gearset and form end thrust bearings, they crop out in the differential and jackshaft bearings, front and rear road wheels are carried by them on the axle, the steering knuckles owe their ease of operation to them, the motor fan revolves on them, so do the pump and commutator. Look where you like, there you find the omnipresent Hess-Bright, the only exceptions being the wristpins and lower-end bearings of the connecting rods.

But 1907 Pope principles are not all hedged in with chrome nickel steel and Hess-Bright; several other new features must be greeted. While the copper jackets of the cylinder continue, they alone constitute the sole remaining factor by which the present motor could be recognized from past styles. The observer must now associate with Pope motor build cylinders cast in pairs, for they so are in type XV, the new machine. Besides this, the maker has taken a farewell of automatic inlet valves and now carries mechanical inlets and exhausts in the cylinder heads and inclines them out from the center vertical line of the cylinder bore at an angle of 20 degrees. The actuation of these brings to the front a system employing but one camshaft on the right side of the motor—four pushrods and four rocker arms. The rocker arm for each cylinder opens both intake and exhaust valves. Compression reliefs on the exhausts facilitate cranking, and a high-tension, gear-driven magneto generates the igniting current.

Do not look to the motor for all the 1907 merits—many others exist. The changes in speed are through a four-speed and reverse selective gearset affording direct drive on the third speed; the motor has flexible connection with the gearset through a multiple disk clutch with thirty-nine disks, and to be very much 1907 the clutch is carried in the front end of the gearset. The jackshaft, well back toward the rear axle, receives the drive through a double-jointed propeller shaft from the gearset and delivers it to the back wheels through a couple of side chains. But this is not all—the Pope Motor Car Co., of Toledo, has more features. The front axle is suspended from the steering pivots instead of carried on them, the frame has its channel facing downwards instead of horizontally towards the center of the car, and, lastly, but by no means least to the observing buyer, the new body does not bear the slightest resemblance to those of



FOUR ROCKER ARMS OPERATE EIGHT VALVES WITH FOUR PUSHRODS

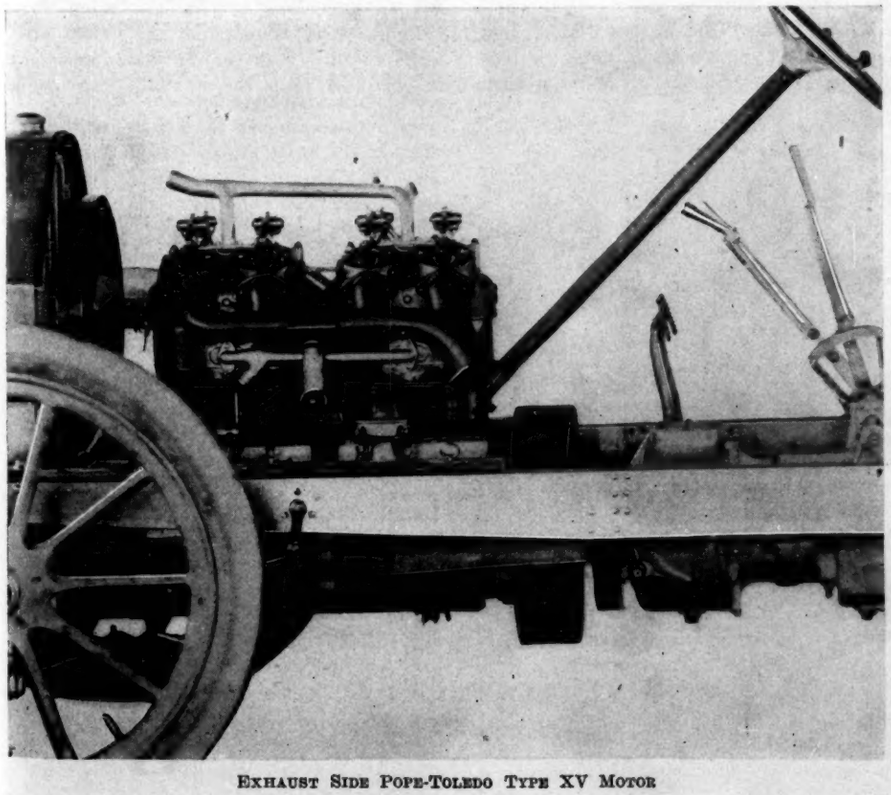


TOP VIEW OF POPE-TOLEDO CHASSIS, SHOWING DIFFERENTIAL ON JACKSHAFT AND PROPELLER SHAFT

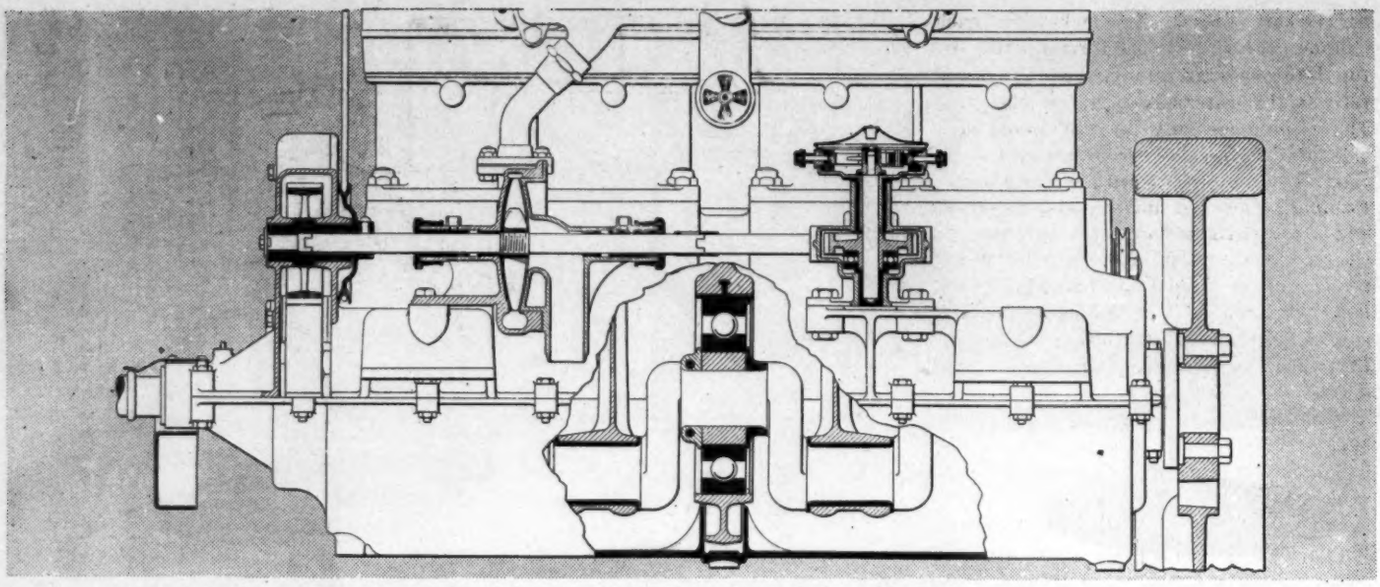
the last few years. Seen from in front in "good morning" fashion, its wavy front axle and irregular octagonal radiator are distinguishers. A broadside reveals straight lines with simple curves—none of the heavy swells of previous styles; and in "good-bye" position the double cylindrical gasoline tank, dropped back axle and body with three vertical panels and horizontal dividing strip across the center comprise its characteristics.

The motor has a fixed rating of 40 horsepower, the bore and stroke of the cylinders measuring 4⅞ and 5¼ inches respectively. Each side of the motor carries its due proportion of parts. The right side has the carbureter, Y-inlet pipes and four pushrods with exposed springs, the inlet valves being on this side at the top. On the left side is the one-piece exhaust manifold carried well up on the cylinder heads but a few inches from the exhaust valves, the rotary water pump beside the front cylinder pair, the commutator beside the back cylinder pair—both about on a level with the top of the crankcase and driven through a special shafting—and the cool-air intake to the carbureter midway between the cylinder pairs and beneath the exhaust piping. The tops of the cylinders are business-looking propositions carrying the rocker arms and return water pipes. Crankshaft speed ranges from 160 to 1,600 revolutions per minute.

In the end section of the motor appears the leading parts of the valve actuation scheme. Intake valve A and exhaust valve B are carried respectively in housings K and R, both ground fits in the recesses in the cylinder heads. The intake housing K has above it an aluminum cage P of conical design, into which the mixture is delivered from the intake pipes and the housing is held to the cylinder head by a couple of studs. The inlet valve spring surrounds a central tube through which the stem works, resting at its lower end on the housing and retained at its upper end by a washer M held against upward movement by split washer. In the top of casting P, where the valve stem passes through it, is a steel washer N, against which the valve stem bears. The exhaust valve, with its housing R, is somewhat different, owing to the compression relief scheme. The lower end of the stem, very much enlarged, carries a shoulder Q. Surrounding the valve stem is a sleeve T whose lower end rests against the shoulder and at its upper end carries an arm V. In the valve housing R is a bronze bushing S threaded internally to mesh with a similar thread on the sleeve T. A part revolution of the arm V in a circle around the valve stem results in a lowering of the sleeve T, owing to its threading with the stationary bushing S. T, in lowering against the shoulder Q on the valve stem, slightly opens the valve. The end of the lever Q has connection with those for the other three cylinders. From the top of the radiator is a worm and gear connection for shifting the levers, the person cranking the motor relieving the compression also. The exhaust valve spring does not appear. One spring serves for two exhaust valves and is shown in the small illustration above the end section of the motor. The spring A—a simple spiral one—rests in a recess B in the cylinder head, midway between the cylinders. Resting on the top of this spring is a yoke C with its center suitably rounded to accommodate the spring top and its ends D forked to fit over the tops of the exhaust valve stems. The tops of the stems carry an enlargement E



EXHAUST SIDE POPE-TOLEDO TYPE XV MOTOR

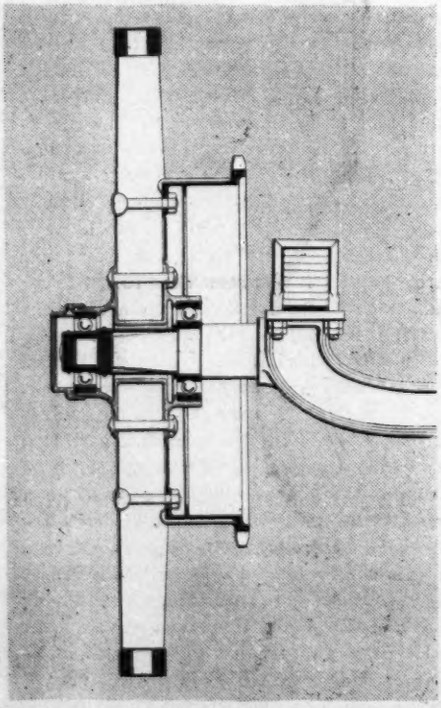


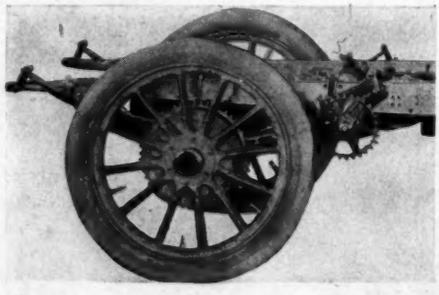
EXHAUST SIDE OF CRANKCASE, SHOWING ROTARY PUMP, CENTRAL CRANKSHAFT BEARING AND COMMUTATOR

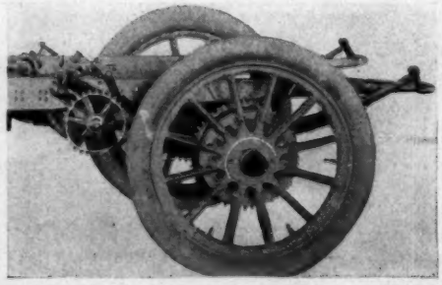
held in place by split washer, and beneath this rests the yoke arms. The valve spring tends to constantly raise the center of the yoke C and the yoke ends keep the exhaust valve up against their seatings.

In opening both valves the source of power is cam Z pinned and keyed to the chrome nickel camshaft in the top of the crankcase at the right side. Resting constantly on this valve is the roller on the bottom of the pushrod H. Supported on the top of this rod is the lifter rod C which, at its top, carries an adjusting nut E, to the top of which is pivoted the end of the rocker arm A1. This rocker arm slightly arches at its center where it is pivoted on a vertical support B1 threaded into the cylinder head. It carries rounded end parts F for bearing on the tops of the valve stems. The pivot pin D carrying the center of the rocker is hardened steel, as are all of the other pivot pins and parts of the valve opening system. When the deepest part of the cam Z raises the lift rod and lifter rod the exhaust valve is open, the intake valve being retained on its seating by its spring. The cam Z revolves to the left, as indicated by the arrow, and shows the exhaust stroke just completed. The lowest part of the cam is for the suction stroke, at which time the spring of the lifter rod pulls the rocker arm against the inlet valve stem, opening the valve. At the close of the suction stroke the uniform portion of the cam—practically half of it and corresponding to the compression and explosion strokes—keeps the rocker arm in a level position, permitting both intake and exhaust valve remaining closed. By this system, which has been used abroad by the Fiat makers, one camshaft suffices for the eight valves, four lifter rods are enough and the parts on the cylinder heads are limited to four rocker arms.

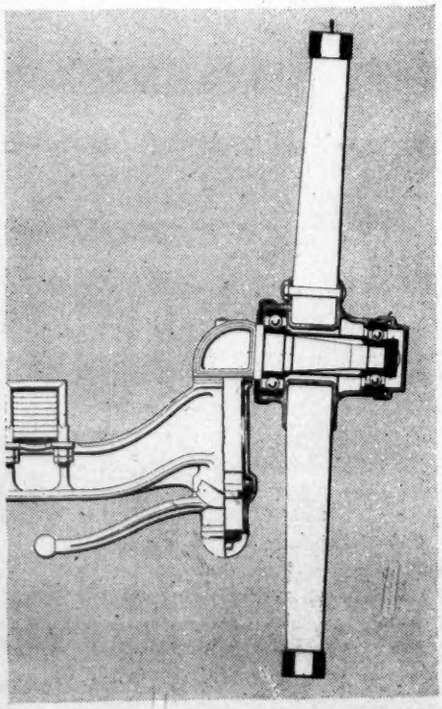
Removal of the exhaust valves means the taking out of the central pivot bolt D, carrying the valve rocker arm, the swinging of the arm out of position and the taking out of three studs when the valve cage can be lifted out. In removing the intakes the induction pipes have first to be loosened, after which the taking out of a couple of studs liberates the valve cage, the rocker arm being taken out of the way, as in case of the exhausts. Before leaving the valve field, attention is directed to the use of flat seating on both intakes and exhausts, as well as the making of heads and stems out of chrome nickel steel and forgings, both integrally. By an ingenious system of coring for cylinder parts surrounding the valves are well provided with cooling water and for the cylinder walls the standard Pope cop-







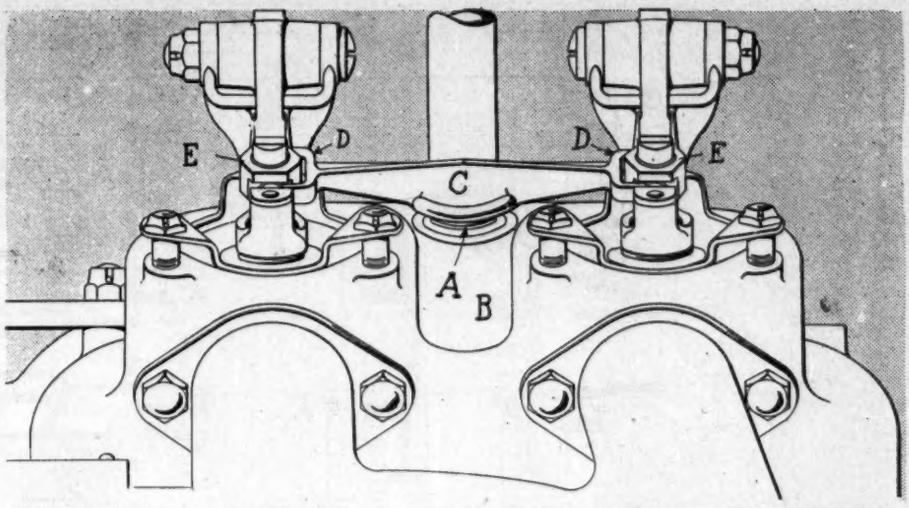
REAR WHEEL AT THE LEFT, SHOWING BRAKE DRUM, SPRING SEAT AND BALL RACES—FRONT WHEEL WITH STEERING KNUCKLE AT RIGHT—DRIVE WHEELS SHOWN IN CENTER CUTS



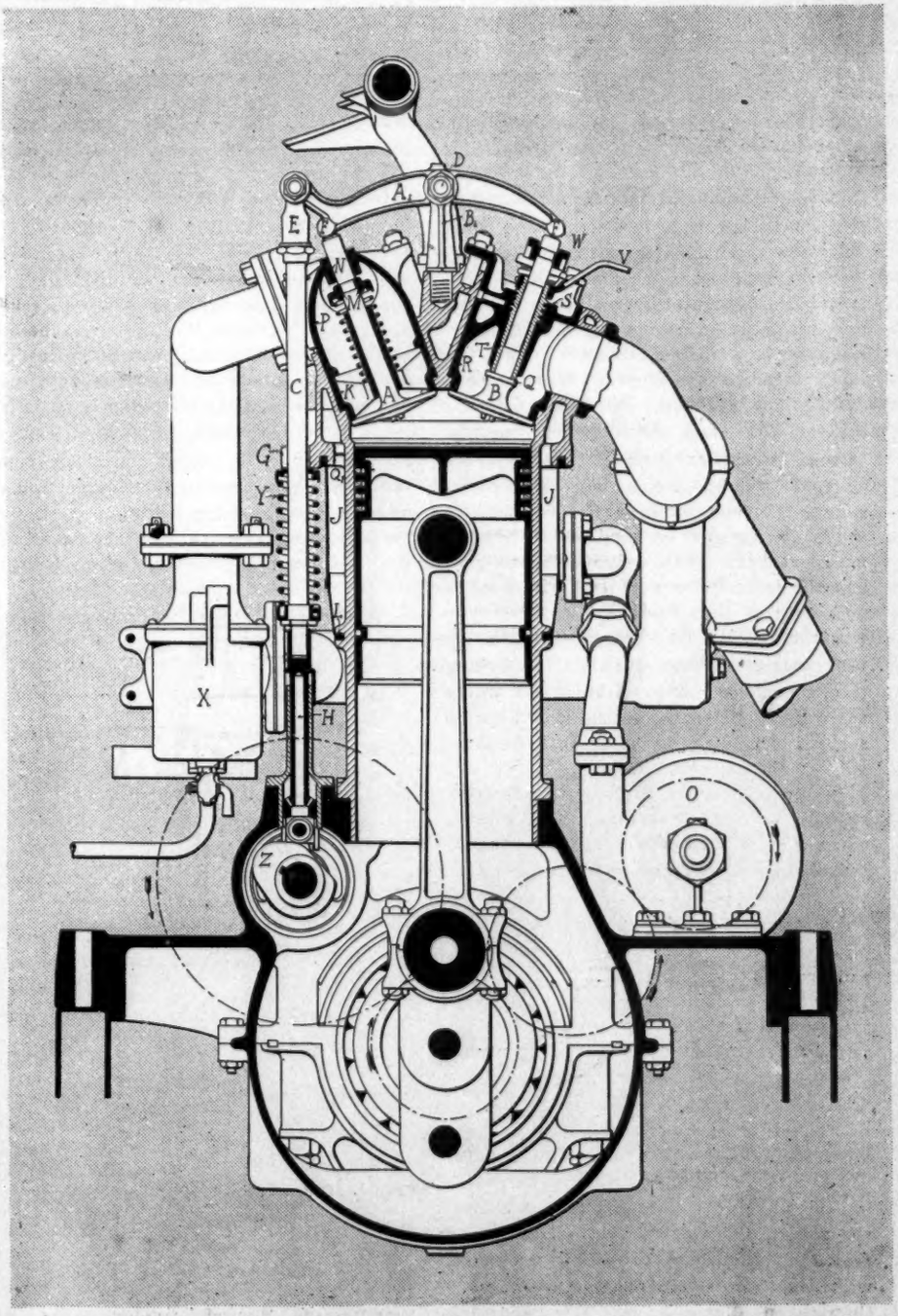
per jackets suffice. The jacket for each cylinder pair is a copper sleeve J fitting its top into a dovetail groove Q on the lower face of the waterjacket part of the head. The copper lies along the top and inner side of this dovetail groove, and the remaining space is filled with a filling metal, forming a positive union, metal to metal, and a water-tight joint. At the base of the jacket a similar union is used, it appearing in the illustration practically on a level with the oil ring in the piston and considerably above the bottom of the piston when the piston is at the top of the stroke.

Pope cylinders are domestic castings of homogeneous metal. First the insides are bored out, a good depth being taken off, after which the surface is ground and a final finish imparted by running the motor for hours consecutively under outside power. Pistons are made of less diameter at the upper ends and have characteristic flat tops with a slightly tapering side. Well above the hollow steel wristpins are four very narrow compression rings of the style used this season in Pope machines. Each ring has thirteen pieces in it: a main ring, non-eccentric but of right-angled triangular cross-section. Within this is a section ring of six sections, each section of the same cross-section as the main ring. Within each section is a flat-leaf spring anchored in slots in the segment and extending from end to end on the inner side of the segment. In putting a ring together these segments with their springs are first fitted into the piston groove, after which the outer half of the ring is sprung into position. In the piston base is a one-piece oil ring for distributing the oil along the cylinder surface. To still further distribute the lubricant the piston surface between the crank wristpin and the oil groove is cut away. Both ends of the connecting rods carry brass bushings, those in the upper end not divided and the lower bushings split horizontally. That principle of carrying the crankshaft bearings in the top of the case rules, the three races of Hess-Bright balls being anchored to the top part through large semi-circular bearing caps bolted to the top part of the case. Where these bearing rings would contact with the aluminum of the case steel plates are sunk into the aluminum, insuring against any wear by movement of the outer circle of the bearing. One side of the steel plate referred to carries a shoulder, against which the outer bearing ring rests, and a thin steel spring ring sprung into a groove of the steel plate prevents end movement at the opposite side of the bearing. On the rear end of the shaft is an integral flange, to which the flywheel is bolted. These balls used approach 1 inch in diameter, making the diameter of the outer bearing ring nearly 7 inches.

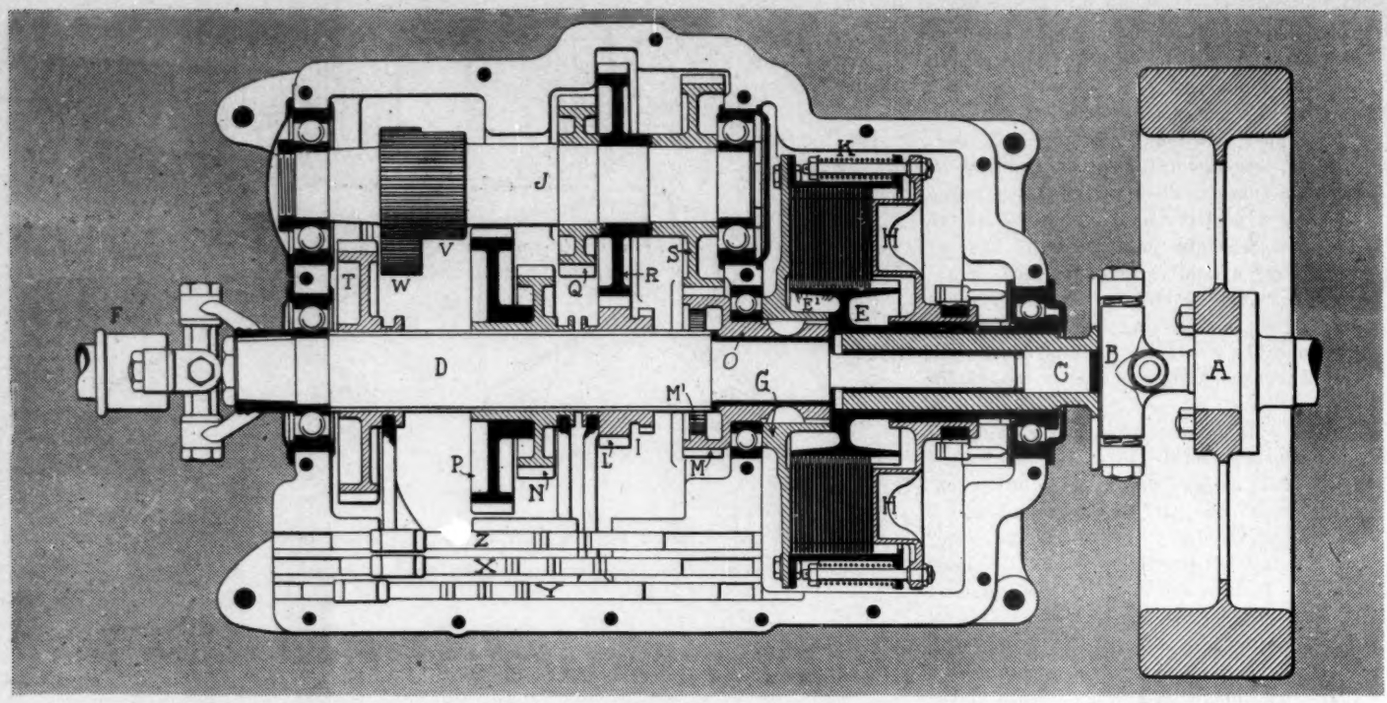
Although, as already mentioned, high tension current for ignition will be furnished by a magneto, the motor illustra-



A Single Spring A, with Double Arm Lever C, Closes the Exhaust Valves Positively



One Camshaft with Four Pushrods and Four Rocker Arms Open All of the Valves

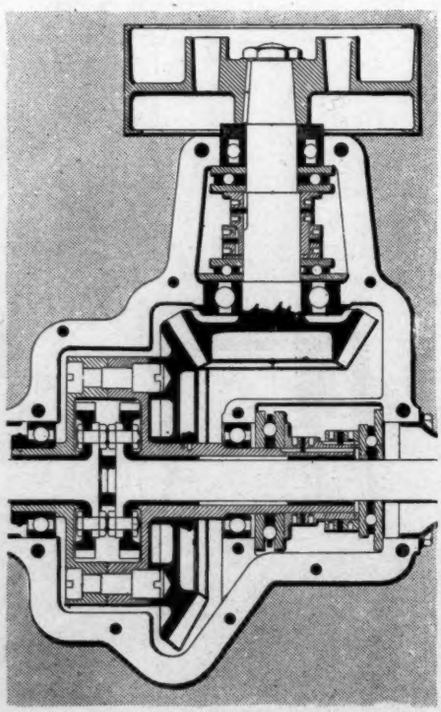


THE POPE-TOLEDO SELECTIVE GEARCASE CARRIES THE MULTIPLE DISK CLUTCH IN AN OIL-TIGHT COMPARTMENT IN IT

tion shows a commutator and the rotary pump carried on the left side. One shaft drives both and to make either individually demountable the shaft is jointed between the commutator and pump and between the pump and its gear. The arrangements are such, however, that the commutator can be lifted off its base plate on the motor frame and a magneto installed, the shaft driving the magneto through a similar gearing. The gearing employed for the commutator is a spiral gear on the horizontal shaft in mesh with the large spur gear on the base of the commutator shaft. The weight of this gear and the commutator and its shaft is taken on a race of Hess-Bright balls. The commutator follows La Coste lines with the four segments forming, with the insulation, a complete circle within which works the roller distributing brush, a coil spring serving to hold the brush against the inner side of the segment circle.

In the cooling of the motor, most conspicuous is the new octagonal radiator of seventy-eight flat copper tubes, each 3¾ inches deep from front to rear and with a very small vertical depth. On the eight sides of these tubes is a water tank of good capacity and into this the tube ends are inserted. In going from top to bottom the water passes from right to left through banks of four tubes at a time. The rotary paddlewheel pump delivers its supply to the center of the jacket on the exhaust side and return pipes are from the tops of the pairs of cylinder heads. Rubber gaskets are used at the union of the water pipes with the cylinder waterjackets. To assist radiation the fan is placed behind the radiator and driven by coil wire belt from the front end of the pump shaft, which shaft is driven from the motor shaft through an idler.

Oiling of the motor by pressure feed remains. Beneath the car footboard is a two-part cylindrical oil tank. Into the top of one compartment of this tank is a copper duct coming from a hand-worked air pump between the individual front seats. A few strokes of this pump insures a pressure of 5 pounds to the square inch on the surface of the oil in the tank. Five leads pass from this tank to a Lukenheimer oiler on the motor bed at the right side, and from here to the four cylinders and to the pump gearing connect five feeds passing through sight tubes on the dash. From the cylinders the oil falls to the crankcase. To supply the crankcase direct a plunger pump is used in the forward compartment of the oil tank, and from this a duct leads direct to the crankcase. A small door in the footboard affords access to the plunger pump. In the transmission an oil bath cares for all the gears as well as the clutch disks, and the ball-bearings are lubricated from splash and oil level.



BALL-BEARING DIFFERENTIAL ON JACKSHAFT

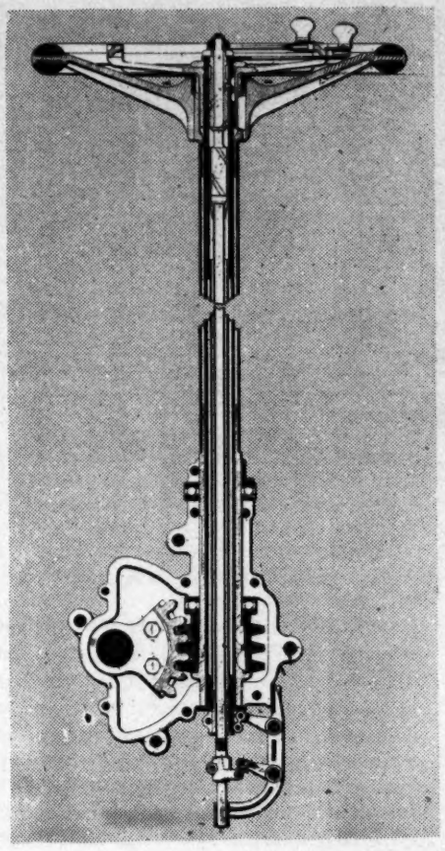
The Pope carbureter, carried centrally on the right, comprises a float chamber to the front and a horizontal cylindrical mixture chamber to the rear. Vertically in the mixing chamber is a standard spraying nozzle with adjusting finger wheel on top, as at present. The throttle is a balanced sliding barrel. Connections are made so that the float can be depressed from the radiator to facilitate starting the motor.

On the opposite side of the motor is a stub pipe for admission of cold air. The pipe carries a revolving head with V openings which cover and uncover similar openings in the pipe end. This year a double gasoline tank strapped beneath the chassis frame at the rear carries 25 gallons of fuel. Both tanks are cylindrical in shape, extending from side to side of the car, and are connected by a union pipe at the bottom and a top air union pipe, allowing the air pressure acting equally on both. On the dash is a 5-gallon running tank into which the gasoline is supplied from the back tanks by air pressure, as in the present Pope-Toledos. On the dash tank a vertical glass gauge shows the fuel level, and within the tank an automatic valve governing the flow of fuel keeps the level in the running tank at a predetermined point. Should it fall below this an alarm is sounded. The device insures against running out of fuel on the road.

In the transmission system the plan section drawing shows the salient features.

Apart from the use of chrome nickel steel in all the shaftings and gears and the carrying of every moving part on Hess-Bright bearings, the feature of the case is the use of four speeds with direct drive on the third speed and the fourth faster than direct. This allows of running on direct on the speed usually used, and affords an exceptionally fast gear for speeding. Added to this is the carrying of the multiple disk clutch in the front part of the gearcase instead of in the flywheel. Referring to the illustration, the crankshaft A of the motor terminates with the universal coupling B in the rear of the flywheel, the other half of the universal joint coupling with a short tailshaft C which enters the front end of the clutchcase and carries the disk carrier E, on which the nineteen soft steel live disks E1 are carried. Alternating with these disks are twenty hard steel dead disks carried from their peripheries on a disk carrier G which is attached to the short shaft within which the mainshaft D of the gearset has its front bearing. The live disks are 10⅛ inches in diameter and attach to the disk carrier through six radial slots working on six keys on the carrier. The dead disks, 10¾ inches in diameter, attach to their carrier by four peripheral slots and lugs and four bolts, the latter for carrying small washer-like springs placed between the disks to assist disengagement. Both sets of disks are 1/16-inch thick. Eight springs K, acting through the pressure plate H, force the disks together. Placing these springs outside of the disk chamber means free action not impeded by oil, as is the case where they are in the oil bath. Distributing them at eights around the disks and having the pressure plate H act on the entire side of the disks aids in complete engagement.

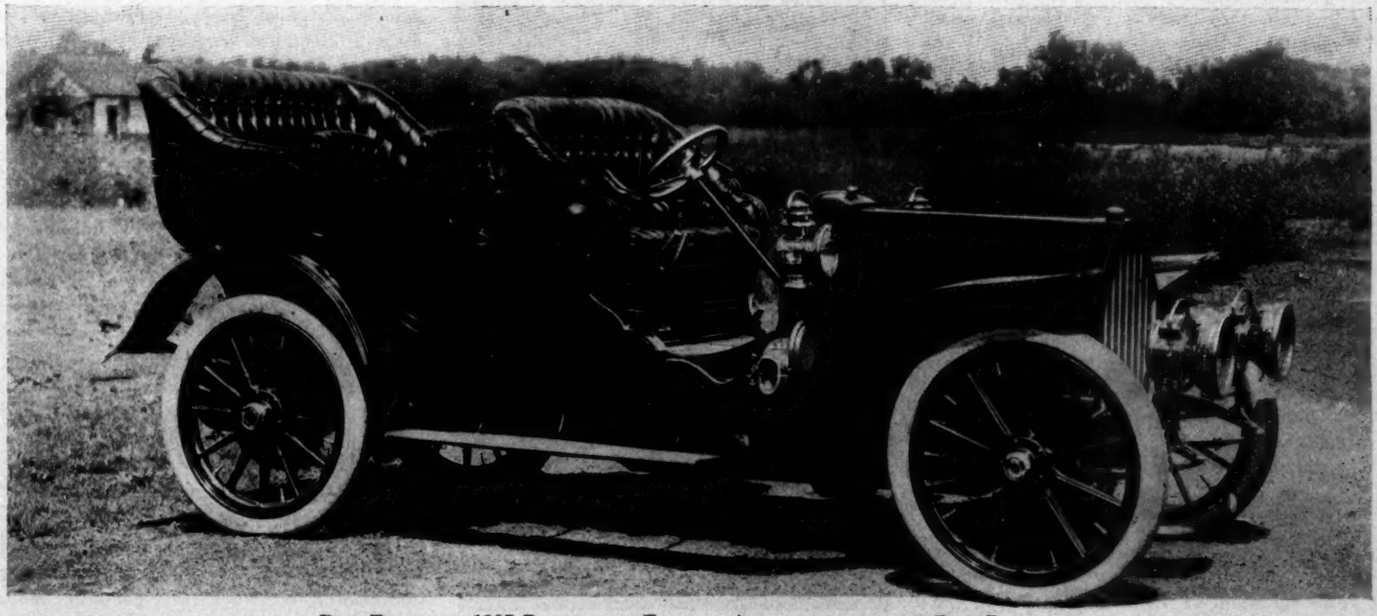
For changing speed three sliding units are used, one gears L and I, another



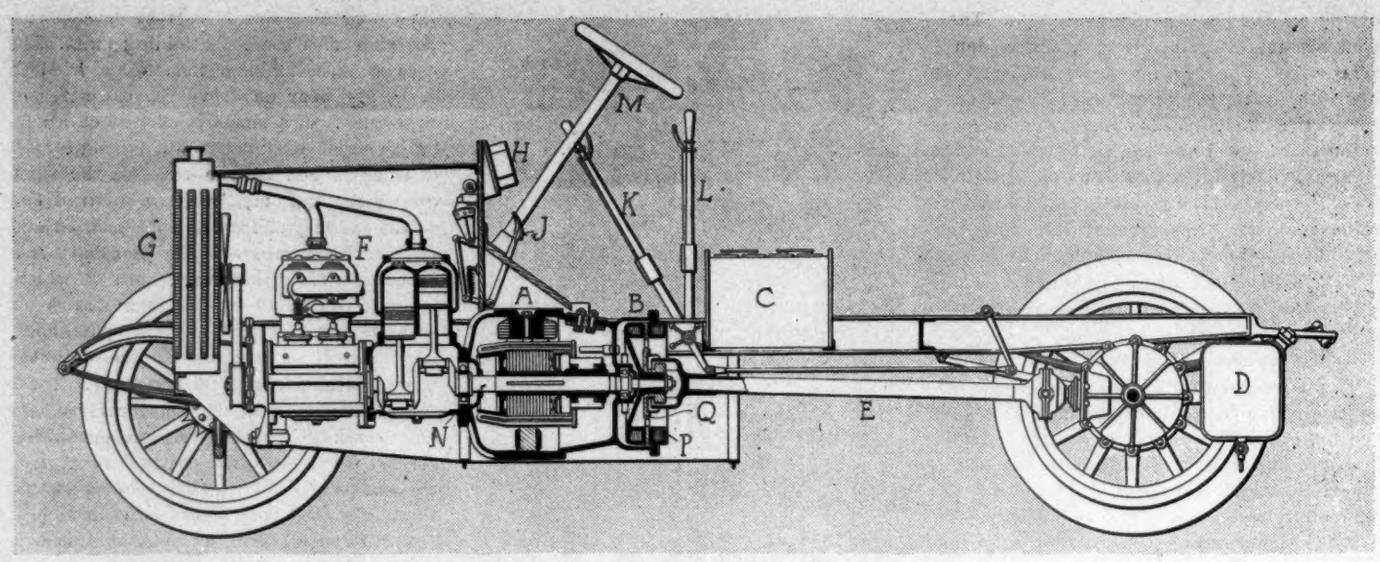
POPE-TOLEDO STEERING COLUMN

gears P and N and a third gears T, all on the mainshaft. In direct drive I meshes internally with M1; for fourth speed L and R mesh as shown; in second Q and N come together; for first, P and V, and in reversing T is moved into mesh with the reverse idler. Changes are made on the standard three-gate quadrant with a locking device controlling the entry into the reverse. The change speed lever is carried on a sleeve enclosing the emergency brake shaft. On this sleeve is a depending arm which engages with the three shifting rods Z, X and Y, which have respectively connections with the three sliding units. The case is an aluminum housing, carried in front and rear on dropped cross-pieces of the frame. The motor is carried on a subframe supported partly on a front dropped cross-piece and at the rear on the same drop piece that supports the forward end of the gearcase. Between the gearset and differential housing on the jackshaft is a couple of universal joints, both of which, as well as the propeller shaft, are of chrome nickel steel. The jackshaft housing is split horizontally in line with the bearings, allowing of the removal of the top half and taking the differential out, as well as the driveshafts, without interfering with the axle casings supporting the car weight. A double bearing carries the pinionshaft, others are at each side of the differential and the jackshaft is supported at each end on a race located close to the chain sprocket. In the final drive the reducing of the chain pitch from 1¼ inch to 1 inch has resulted in a comparative reduction of noise. The jackshaft sprockets have thirty teeth and those on the rear wheels fifty.

Noteworthy in the running gear of the car is the using of an exceptionally deep channel in the cold pressed steel frames and the turning of the channel downwards. The channels are reinforced at the lower edge by lapping the metal back on itself and rigidity is added by using spacing sleeves between the channels around bolts which pierce them, as where gusset plates are riveted on or where cross-pieces are attached. Making the side pieces straight from end to end, deepening the channels in the center, using seven cross-pieces—the forward three dropped for carrying the motor and gearset and the back four straight for cross-stays—and the liberal use of gusset plates, are the credit marks in the frame build. Both axles are of nickel steel in I-section, electrically welded



POPE-TOLEDO IN 1907 DRESS WITH TONNEAU ACCOMMODATION FOR FIVE PASSENGERS

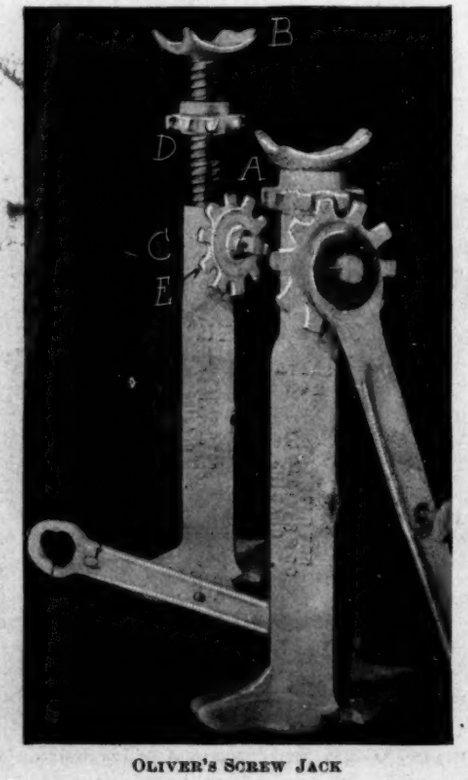


SIDE SECTION OF AUTO-MIXTE CHASSIS, SHOWING GENERATOR A, MOTOR F AND BATTERY C

at the center. Emergency brakes are expanding members lined with camels' hair and operate against the inside of the steel drums on the rear wheels. Made integrally with these drums are the sprockets for the chains. The drum is bolted to every spoke in the wheel. The regular brake is a friction band engaging on a brake wheel on the propeller shaft immediately in front of the differential housing. The steering pivots of the front axle are chrome nickel steel forgings, consisting of two arms at right angles to each other, the horizontal one forming the bearing spindle for the wheel and the vertical one the steering pivot. The latter passes through a vertical hub in the axle end and carries at its lower end a ball bearing on which the axle is supported, throwing the axle below the wheel spindle, giving a lower carriage than where carried above. The steering knuckle is of inverted Lemoine type. The steering gear is a worm and segment, both of hardened steel and properly housed. The column of the concentric tube style has the throttle and spark finger levers on stationary quadrants, the former carried on a central rod and the latter on a tube. Ball bearings are used exclusively in the column. Radius rods from the back axle to the jackshaft for adjusting the chains have banjo heads at the rear and support the expanding members of the brakes and in front have a ball and socket union with the jackshaft bracket, one-half of the socket being a union which fits over the ball on the end of the radius rod and threads over the other half of the socket on the jackshaft casing bracket. Wood wheels, 36 inches in diameter, carry in front 4-inch tires and 4½ in rear. The wheelbase is 115 inches, the tread is standard and weight close to 3,000 pounds.

OLIVER HAS NEW JACK

In a new style of Oliver jack, coming from the shop of A. J. Oliver & Co., Chicago, the lifting part is a heavily-threaded upright A contained within an upright body part C. Elevation is through a nut D on the threaded upright. The nut has ten coarse peripheral teeth which mesh with similar teeth on a wheel E supported on the body part. A lever F with opening H fits over hub flange on the wheel E, and through the medium of the catch lug G, on the side which meshes with the teeth of the wheel E, this wheel is slowly revolved and being in mesh with wheel D the latter also is revolved. With each turn of the wheel D the standard rises. Because of the peculiar opening H it is possible to pull the handle away from the jack slightly and then raise it past the end of the teeth in wheel E and then pushing it towards the standard, lock it between the teeth and lowering it perform part of a revolution. This pulling and pushing movement is continued, each time a third of a revolution of the wheel E being accomplished. In lowering an opposite movement of the handle F is needed, it being moved up instead of down when working; moving down, of course, when picking up fresh teeth for another part revolution. In actual trial Motor Age found the jack to work very easily in lifting one end of the front axle of a six-cylinder National car and lowered the same with equal ease, retaining the axle elevated without any locking scheme, as needed in rack and gear jacks. The top part B has a universal—accurately speaking, loose—connection on the top of the standard. In the wrench handle is a thumb-screw for locking the handle to the jack body when not in service. The jack is made in several models for all sizes of cars.



OLIVER'S SCREW JACK

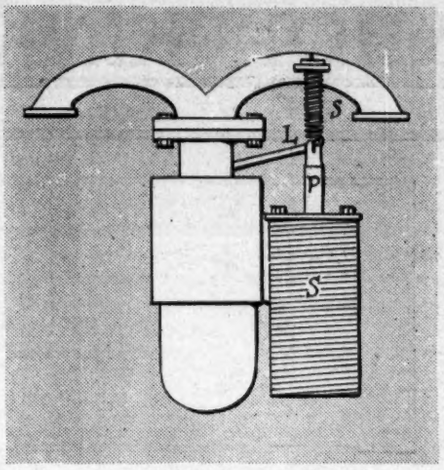
AUTO-MIXTE CARS

Good-by to the change speed gearset and adieu to the multiple disk and cone flywheel clutches, says Henry Pieper, a French electrical engineer, who, in conjunction with Henry Tudor, after whom the well-known Tudor storage batteries received their name, has perfected a gasoline-electric motor car which received its formal introduction to the international public who crowded the halls of the Paris salon last December. The product of Mr. Pieper has been termed the Auto-Mixte.

Glancing at the side view of the Auto-Mixte chassis, the story of the "Mixte" part of the machine is revealed in an electric motor-generator A carried on a continuation of the motor crankshaft N; a magnetic clutch B, and a Tudor storage battery C located immediately beneath the driver's seat. A four-cylinder gasoline motor F occupies a position identical with its location in a gasoline car, but instead of carrying a flywheel takes the electric motor-generator attached rigidly to the crankshaft, so when the gasoline motor crankshaft revolves so does the armature

of the electric motor, and vice versa. The electro-magnetic clutch B plays a role identical with the flywheel clutch in the standard motor car, and from it a cardanshaft E transmits through bevel gears and a differential to the live back axle of the car.

By the action of the gasoline motor, which drives the generator and which recharges the battery while the car is running, the difficulty of short mileage of the electric machine is overcome. So much for the improvement over the out-and-out electric. In relation to the gasoline car the Auto-Mixte offers the advantage of having no change-speed gearset and no gripping clutch. By the flexible electro-magnetic clutch an acceleration as smooth as that in an electric machine is obtained and by an electric controller any amount of current can be taken from the storage cells and used by the electric generator, which then acts as a motor, helping the gasoline motor drive the car on grades or heavy roads. When running down grades the electric motor acts as a generator and produces electricity, which passes to the storage battery, recharging it; thus the power of the gasoline motor is utilized at a time when it ordinarily goes to waste, and it should not be forgotten that when running down hill this work of the gasoline motor running the electric generator impedes the progress of the car and eliminates the necessity of using brakes on the back wheels. Readers must bear in mind that in the Auto-Mixte car the storage battery does not drive electric motors geared to the driving wheels, as in several American gasoline-electric cars, but that it discharges into the motor A when the motor assists the gasoline motor in taking care of the load. The electric motor A thus plays a dual role; at one time it is an electric generator, being driven by the gasoline motor, and it sends its current into the storage battery C; at another time it becomes an electric motor and draws current from the battery C, using this current to drive itself; then it drives, or rather, assists the gasoline motor. The control of this electric motor-generator is automatic and the driver is not aware exactly when it is assisting the gasoline motor and discharging the battery or being driven by the gasoline motor and charging the battery. The storage battery of the Tudor, twenty-four-cell size, weighs 330 pounds and is specially designed to stand an extremely heavy discharge for short periods. Although having a capacity of 50 ampere hours, the rate of discharge frequently exceeds 150 amperes, and information has it that occasionally the discharge reaches 350 amperes without injury to the battery. The storage battery does not play the role of a reservoir only, but also that of a reguator.

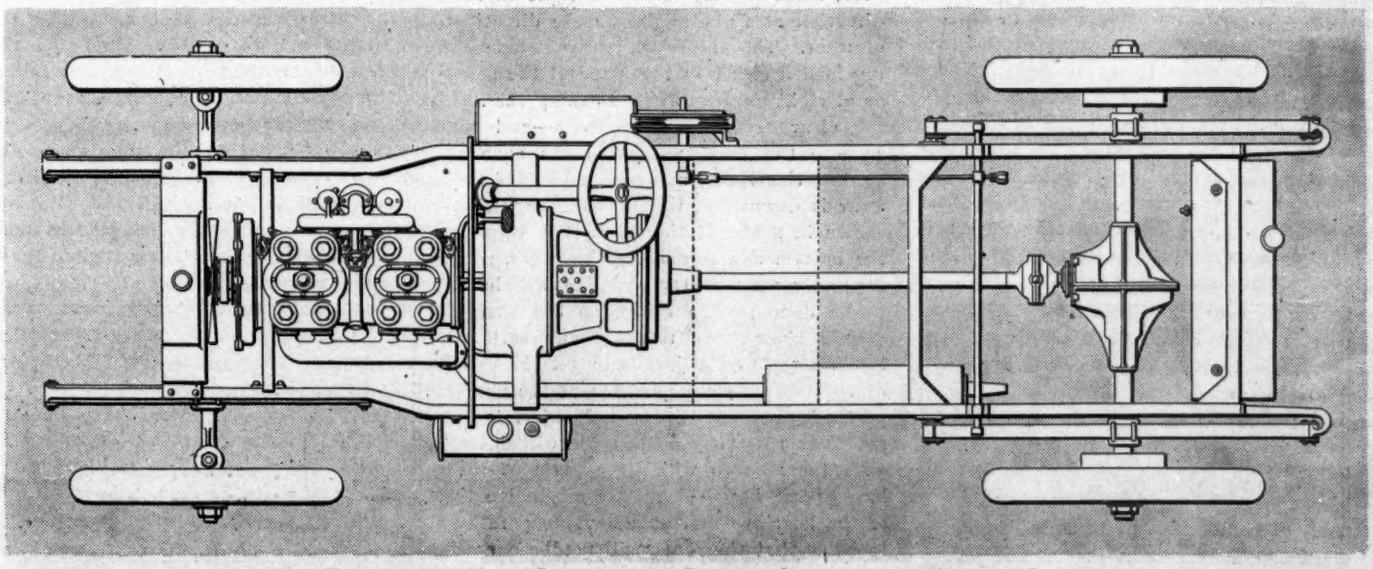


AUTO-MIXTE CARBURETER
S Coil, P Plunger, L Throttle Lever, S Support Spring

The electro-magnetic clutch consists of a metallic plate Q on the rear end of the crankshaft. On one side of this clutch is a large coil P, through which the electricity is permitted to travel. The current passing through this coil acts on a core-piece which, becoming a magnet, acts on the steel plate on the end of the crankshaft and so connects the crankshaft with the cardanshaft.

The control of the vehicle is simple. A side lever at the right of the driver and working in a quadrant has in all twelve notches or positions. The back notch is for reverse; with the lever in the second position, the gasoline engine is stopped; the third is neutral position; the fourth, first speed, and the remaining ones are gradual speed gradations. The first movement of the lever starts the gasoline motor through the agency of the electric motor, which takes its current from the storage battery and so drives the gasoline motor. There is no cranking of the gasoline engine. Resistances are inserted so an excessive current is not drawn while gathering speed. The lever is then pushed into the first or second speed notch and the magnetic clutch is let in. Subsequent movements of the lever give gradual changes of speed, the effect being the same as using higher speeds in a transmission set but without the accompanying jerks and jarring. A feature of this control is the method of caring for the gasoline engine. When approaching a car crossing and a train obstructs the road, throwing the lever to the second position stops the gasoline engine. When ready to start, the current is let into the generator, the gasoline motor re-starts. Letting the clutch in, the car moves off noiselessly. On the dash is an ammeter which is always on the move—now rising to a maximum showing a discharge of 150 amperes and again sinking to zero.

The gasoline engine is of standard lines, incorporating in its design cylinders cast in pairs with mechanically-operated valves placed on opposite sides of the cylinders, make-and-break ignition with current taken from the storage cells and thermo-syphon cooling system assisted by a fan in the rear of the radiator. The motor, rated at 14 horsepower, has a 4-inch bore and stroke. The electric motor in the rear of it is rated at 8 horsepower. Mixture comes from an electric-controlled carbureter, illustrated herewith.

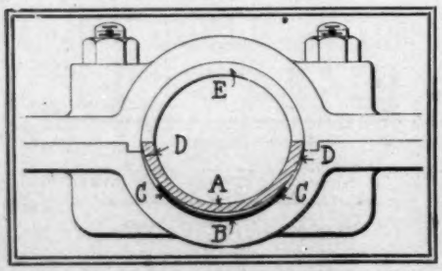


PLAN VIEW OF AUTO-MIXTE CHASSIS, WITH ELECTRIC GENERATOR AND MAGNETIC CLUTCH

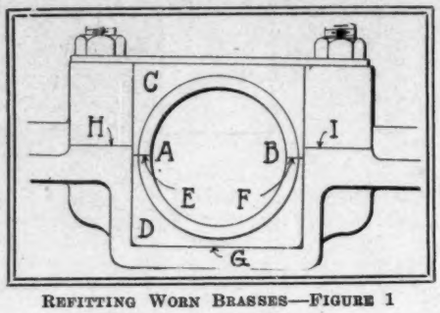
SHOP KINKS

Refitting Worn Brasses

The simplest kind of a bearing to refit is that shown in figure 1. It is commonly designed—and should be always—with the plane AB, in which the bearing is split, at right angles to the direction of the pressure, which in the case shown in the sketch may be either up or down. The cap of the bearing C is a bronze casting and unlined. The bottom edge D of the bearing is a bronze casting also, and has flat perpendicular sides and base. If the pressure is downward all that is necessary to bring the shafts in line when D is worn is to file a little off the edges EF and put liners between D and G, after which the bearing surface is scraped to restore the proper curvature. If the pressure is upward the worn edges of C are similarly filed, but in this case it is common to put shims under the faces HI, and by taking these shims out C can be lowered. In some bearings the edges of C and D do not meet at EF, but this is objectionable, because it allows the oil to escape between these edges. In other cases the faces HI do not touch, the pressure caused by drawing down the nuts coming entirely at EF. If the parts are properly designed so that they will not bend there is no objection to this. This bearing is seldom or never used in automobile work, because it is heavier than the common form with round bushings, solid or split. This latter form of bearing is usually employed for connecting rod ends, crankshaft bearings, and the bushings of the gear case when ball bearings are not used. It is a much more difficult bearing to refit properly when worn, because of the lack of a flat surface G—as in figure 1—for the liners. The wrong way to build up a worn brass is shown in figure 2. The brass A is simply raised to an extent equal to the amount of its wear, or a little more, and is supported by a liner B of cardboard. The effect of this, which is shown exaggerated in the sketch, is to support A only at the points CC and DD. Of

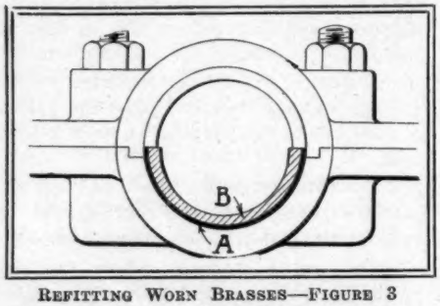


REFITTING WORN BRASSES—FIGURE 2



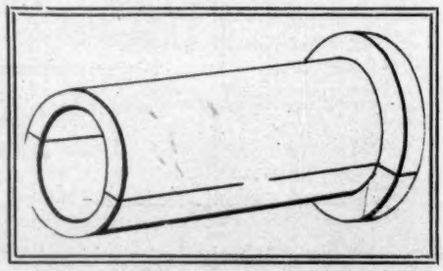
REFITTING WORN BRASSES—FIGURE 1

course A and B crush out of shape in a short time, the shaft is thrown out of line, its bearings on A reduced to a small fraction of what it should be, and the whole bearing is loosened besides. Gear cases of light and high-powered machines like the Mercedes have been known to be wrecked by the straining of the shafts as a result of careless refitting of this character. Of course if the pressure is upward the same principle applies in refitting the top half E of the bushing. In case the pressure and the wear come on



REFITTING WORN BRASSES—FIGURE 3

the sides of the bearing—an unusual condition but one which cannot always be avoided—the simple raising of the brass will accomplish practically no result whatever, since it only makes it tight in the direction at right angles to the direction of wear. The proper way to refit a bearing loaded either in the plane of the split or at right angles to it is to carry the lining clear around—see figure 3—and to squeeze the brass until it bears equally against this lining at every point. If the wear is downward, which is the condition shown in figure 3, the brass B is thin at the bottom and thicker at the edges, consequently most of the scraping will have to be done at the edges, as the sketch plainly shows. In refitting any sort of bearing the first object is to get the axes of the two or more bearings of the shaft perfectly in line. The second object is to get them as nearly as possible coincident with the axis to which the seats of the brasses are bored—i. e., the original axis of the bearing—and at all events parallel to it, so that the shaft will not be out of line with its related parts, such as the piston pins or complementary gearshaft. The way that this is done, as probably most Motor Age readers know, is to use red lead or some similar color mixed with oil. This is rubbed on the shaft, which is then put in its bearings and rotated, when the coloring matter on the high spots of the bearing shows where scraping is needed. To get a shaft parallel with its original position is a job requiring the expert skill of a machinist, and the procedure will vary so much with the individual case that it is hard to give rules. In any case, the accuracy of the work is tested by assembling all the parts and determining whether or not the shaft turns freely with the pistons and cranks in all positions. It will commonly be found in a gas engine that the bearings toward the cylinder—i. e., the upper brasses of a vertical engine—are little if any worn, and these can be used to give the correct alignment of the shaft. An aluminum gear case containing brasses that have been incorrectly refitted, as shown in figure 2, will occasionally have the bearing seats dented so much by the edges of the liners that it will have to be rebored before an accurate job of lining up can be done. A solid bushing is not meant to be taken up, and must be thrown away when it begins to wear. To fit a new bushing commonly requires that the shaft be trued up, which of course must reduce its diameter slightly, and consequently a job of scraping is likely to be necessary to fit the new bushing. This is the reason why it is seldom possible to "slip in" a new bushing in the simple and expeditious manner which the novice is apt to expect. While on the subject of bearings it is worth pointing out that the crankpins of any motor which has run a season or more are likely to be worn slightly flat on the side where the pressure comes. To speak more accurately, they are slightly elliptical, and although this is a matter of a few thousandths only, it is sufficient to make it impossible to fit a new crankpin brass until the crankpins



REFITTING WORN BRASSES—FIGURE 4

have been made round again. To do this it is not necessary to use a lathe. An expert workman with a fine Swiss file and a pair of calipers can restore a crankpin to its proper shape within sufficient limits of accuracy. If the pin is slightly cut it is not necessary to efface the cuts provided they run all the way around and are not ragged. The job should be finished by polishing with fine emery cloth and oil, and it is best to rub the emery cloth on itself to free it from as much loose emery as possible. A leather or canvas strap back of the strip of emery cloth will accelerate the process of polishing. A device for taking up a solid bushing, which has been recommended for gear cases transmitting only moderate power, is to split the bushing all the way down one side, as shown in figure 4, and split the ends on the opposite diameter, leaving about ½ inch in the middle between the cuts. Then the brass is squeezed together into as nearly a circular form as possible, and is surrounded by a liner. As the ends are squeezed together more they will require more lining and more scraping. This scheme is considered too risky for cars developing over about 15 horsepower. The increased use of the automobile and the consequent growth in the patronage of repair shops, sugests that repairmen, both in large and small places, should give considerable time to the study of automobile shop practice. Few repairmen, although they may be good general mechanics, are versed in the fine points of automobile practice, particularly that relating to bearings, which are naturally the life of the machine. A motor canot be counted on to perform its best work with bearings either out of line of badly worn, and this condition is quite usual with the motor that has been run two or three seasons. The bearings are under heavy strain always.

THE READERS' CLEARING HOUSE

THAT IOWA CASE AGAIN

Spirit Lake, Ia.—Editor Motor Age—In a recent issue of Motor Age was an article from H. H. Franklin Mfg. Co. which you head "System of Education Needed in Iowa" and in which is recounted the experience and arrest of the men running the Franklin six-cylinder car through Iowa from San Francisco to New York. As a motor enthusiast and a member of the legal profession, it seemed my duty to make clear the law of this state and I therefore write you concerning same. In 1904 the legislature of this state adopted what appears to me to be a very reasonable law, regulating the operation of automobiles. This law requires the registration of each machine, the payment of a fee of $1 for such registration and the display of the number given in such registration. As to non-resident owners, it is provided that registration is not required provided such owner has complied with any law requiring registration in force at the place of his residence and shall display upon his machine such number as has been there given him. Residents and non-residents alike must conform to the provisions regulating operation which are in substance as follows: The machine shall not be operated at a greater rate of speed than is reasonable, having regard to the traffic and use of the highway, nor in such a manner as to endanger the life or limb of any person and shall not in any event be operated within closely built-up portions of a city, town or village at a greater rate than 1 mile in 6 minutes or elsewhere in a city, town or village at a greater rate than 20 miles per hour. Upon approaching a crossing of intersecting highways, bridge, sharp curve or steep descent and also while traversing such crossing, bridge, curve or descent, the machine shall be kept wholly under control of the operator and at a less rate of speed than above described, having regard to the traffic then on such highway and the safety of the public. Upon meeting a person riding or driving along the highway if such person shall raise his hand or if the team appears frightened, the automobile must be brought to an immediate stop and remain standing until the person so met has been enabled to pass and if driving in the same direction, they shall use reasonable caution in passing. It is also provided that the machine operator shall render such assistance as may be necessary in passing any person upon the highways. It is quite probable that the Franklin company's operator in his hurry to reach New York failed to stop when he saw that the farmer's horses were restive and hence violated the law. Under the laws of this state the right to arrest exists in any case of known violation of the law without a warrant and therefore the officers were authorized to make such arrest and to use such force as was necessary to accomplish that arrest. The law of this state is considered by local automobilists as very reasonable, but in order to escape difficulty should be understood by the operator. Had the Franklin operator stopped the machine upon meeting the farmer until he had opportunity to pass, there could have been no violation.—L. E. Francis.

LOSS OF POWER

Pittsburg, Pa.—Editor Motor Age—Will you kindly give me some information through the columns of the Readers' Clearing House? I have a car with a two-cylinder vertical motor, rated at 16 horsepower. It is apparently in the best condition except that power is lacking. It never misses fire, the storage battery is properly charged, the cylinders are clean, the gasoline is the best, the flow of gasoline to the carbureter is good, the valve gear is properly set—but I am unable to discover the fault. The car has three forward speeds and a reverse, but the best I can negotiate any hill is on the low gear. The best I can do on second speed is about 3 per cent grade and a little better than a level road on the high. I can negotiate a 5 per cent grade on the second speed for a little distance, when the power gradually dies away. I am using an old coil—could this be at fault in this case? I am at a loss to know what to do and would be pleased to receive some assistance. The car weighs about 1,700 pounds and runs easily.—George Winkler.

It is not likely the ignition system is seriously wrong, but it is possible the plugs have developed a short circuit and need repairing. Put in new plugs and adjust the coil until a good spark is obtained; then tackle the carbureter. The statement made suggests that the mixture is much too rich and the supply of gasoline needs cutting down a good deal. If this does not remedy the case, probably the piston rings have become so gummed as to stick and cause a loss of compression. Any experienced repairman should locate the difficulty in a short time.

CARBURETER TROUBLES, LIKELY

Bismarck, N. D.—Editor Motor Age—Can you tell me through the columns of the Readers' Clearing House wherein my trouble lies in a motor that a friend brought me to see if I could make it develop more power? The car weighs 2,100 pounds, has an opposed motor with 5½-inch bore and 6-inch stroke. It has good compression and the valves open and close correctly. It has a Schebler carbureter with 1-inch intake piping. The car runs well on level roads, but will not climb hills on the high gear. Is the fault in the intake piping or is it in the carbureter, as the ignition and all other things seem to be in the best order?—F. Jaszkowiak.

The certainty with which the inquirer states that the intakes are all right and the ignition seemingly so, puts everything up to the carbureter. This situation agrees with an experience just gone through where a car would not climb hills and the motor had a tendency to overheat. The double fault was at once corrected by the simple act of cutting down the gasoline feed; in other words, the carbureter was set to give too rich a mixture, which is probably Mr. Jaszkowiak's trouble.

THE REALM OF THE COMMERCIAL CAR

Electric Wagons Successfully Used by Police Departments, Banks and Coal and Lighting Companies

A Relic of the Pan-American Exposition Is Now Used in Hartford Electric Light Service

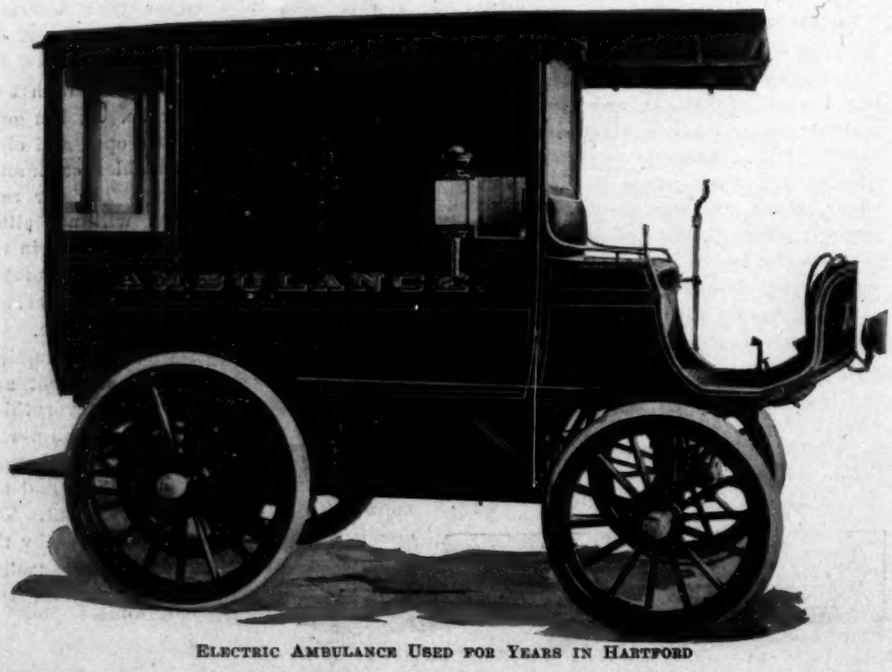
IN HARTFORD, CONN., capital of the Nutmeg state, not only are gasoline vehicles coming into general use, but electrics as well. The latter seem to appeal to a certain class of merchants who will entertain no thought of the gasoline type. This may be explained in a measure by the great overload capacity of the electric motor. The first vehicle of the electric type used in Hartford was the police patrol, which now has been in service for 5 years, summer and winter, and unless the snows were unusually deep the inebriates were accorded their motor ride to the snares of justice. Shortly after the installation of the patrol, an ambulance was purchased, both vehicles being built by the Electric Vehicle Co., of that city. According to Chief Ryan, who was in office when the vehicles were purchased, they have done the work of five horses, the patrol having superseded two horse-drawn patrol wagons, while the ambulance took the place of a single horse-drawn affair. That they are economical may be gained from the statement of the chief as to the cost of maintaining the ambulance for 5 months from the date of installation and the patrol for a year was $467.98, while the cost of keeping the horse equipment the last year it was in service was $1,180.08, which includes the cost of feed, shoeing, necessary supplies and repairs. The saving is obvious. It is hardly necessary to state that the service has been greatly improved by the installation of the electrics. The mileage of the patrol averages 40 miles per day, in the summer at least, and the ambulance perhaps 25.

The Allyn house and Hotel Heublein, two of the representative hostelries, a few years ago installed buses for the transportation of guests and baggage to and from the railroad station. These two machines were local creations and have rendered very good service. The New Dom hotel also uses an electric bus. The distance traversed by all three of these machines is not in excess of ½-mile, with a good asphalt road practically all the way, with the exception of the Heublein vehicle, which usually goes over the macadam road, which is not at all bad. After the day's work is over the vehicles are placed in their respective stations and the batteries recharged. Their use has improved the service and with the exception of very heavy weather they are used the year round.

The Hartford Rubber Works and the government envelope works employ 5-ton Columbia trucks. They are in constant service. The rubber works truck covers perhaps much more ground than does the government truck, as the factory is some 3 miles from the center of the city. It is usually loaded to its fullest capacity.

Perhaps the most novel employment of the electric is by the Edward Balfe Co., which has the contract for watering the city streets. The electric water wagon is much in evidence when nature does not claim the field. The chassis is that of a 2½-ton truck, the iron water tank being fitted by a local wagon builder. It gets over the ground and does its work well.

The Hartford Electric Light Co. doubtless employs more electric vehicles than any other concern in the city. An old truck which has done service for the past few years was for a time fitted with steel flat tires, which have since been replaced by rubber ones. It is of about 2 tons' capacity and carries all the necessary supplies of the linemen, such as large reels of wire, cross-sections, and now and then it is not an unusual sight to see it hauling a telegraph pole by means of a trailer. It is usually loaded to the fullest capacity, not to say anything of five or six linemen. A Riker 1-ton truck is used by the company for hauling supplies from the railroad stations to the various branches of the company. A complete charging plant is in service and a crew of experts keeps the vehicles in constant trim. A novel vehicle employed by the company is



Electric Ambulance Used for Years in Hartford

a light wagon which was formerly used as a mail wagon at the Buffalo exposition. The company worked it over to suit its purpose and in a measure it differs much from the original vehicle. It is used for carrying lamps and light supplies. The operator sits in the rear of the vehicle, but notwithstanding it seems to serve its purpose. It is, of course, quite to be expected that a concern making electricity would employ vehicles adapted to its use. No careful record of expense is kept, but it is said by an officer of the company that the vehicles are much cheaper than horse service and speedier.

IN ICE SERVICE

In Hartford there is an enterprising ice company which delivers the "much needful" these sweltering days by means of a 5-ton truck. The ability of the truck to get over the ground with despatch means much to the company this weather, as ice depreciates in value, inasmuch as it melts very quickly, particularly if it be the manufactured product, as is the case in this instance. On June 28 the Charter Oak Hygeia Ice Co. received a 5-ton truck fitted with a special body for hauling ice. In general appearance the van very closely resembles the every-day ice wagon with the exception of being larger and higher. It will contain an even 5 tons of ice without any perceptible crowding. The plant of the company is located adjacent to the railroad tracks and as horse traffic is very heavy at this point the road is for the most part in poor condition. For about ½ mile from the plant on the road to the city loose stones cover the surface, or depressions and ruts are encountered. These, however, have no perceptible effect on the vehicle, which gets over the ground very easily. There are two routes by which the van may reach the business section of the town, but in either case a long hill must be negotiated. The truck is, however, quite equal to the emergency and no trouble is experienced.

HARTFORD'S ELECTRIC POLICE PATROL WAGON

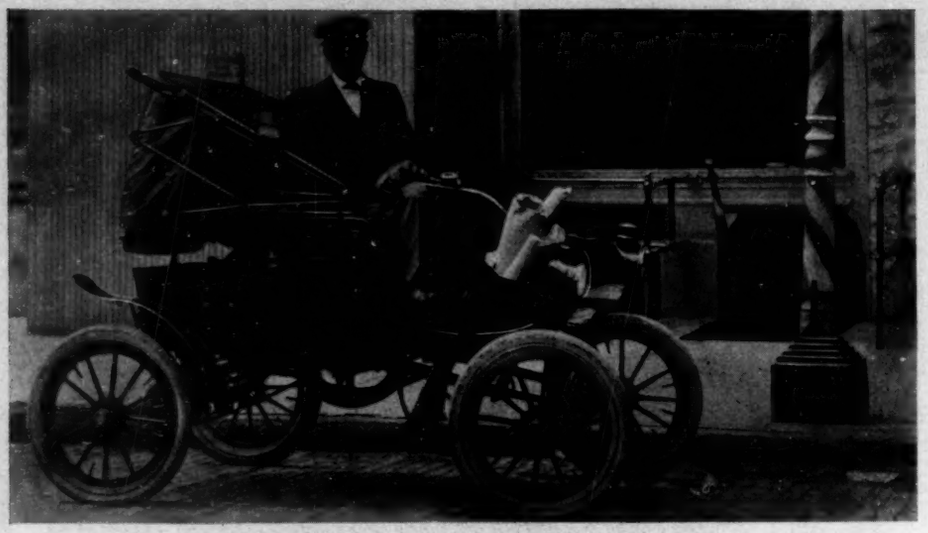
Manager Kelsey, in reply to a question as to efficiency, said: "Certainly they are efficient. We can carry an excessive load each trip in the vehicle, and it will do the trick; that is to say, we can overload it every trip with no disastrous results. This would be impossible with a horse team. If any one of our trucks is in need of repairs we can lay it up for a week or 10 days at no cost whatever, but if we had a sick horse he would consume feed just the same and be costing us something as well. We can do four times the work of a double team with the truck."

The vehicle is capable of a speed of 9 miles an hour under full load and will negotiate a 23 per cent grade easily. The battery is of six sections and is a 44-cell 19 M. V. Exide type; two General Electric motors drive by chains to the rear wheels, and 35 miles a day is the average mileage, 40 miles being the maximum of the batteries. The wheels are 36 inches, fitted with 7-inch Firestone solid rubber tires. The batteries are charged on the company's premises by a single wire system. The company generates its own power and the cost for charging is thus reduced to a minimum. Six more of the vehicles are now on order and delivery is expected at an early date.

TRANSPORTS COAL

The O'Connor Coal Co., also of Hartford, has for the past year or more been making extensive use of a Columbia 2½-ton truck in its regular delivery service with good results. The vehicle differs but little from the regular Columbia model. It is usually loaded to the fullest capacity and delivers coal to all parts of the city, and as the roads are for the most part very good this is not a very difficult matter. Recently, however, the company was mixed up in an ice deal and for several days the truck carted ice to a country

IN HARTFORD THE HYGEIA ICE CO. USES A LARGE ELECTRIC WAGON TO EXCELLENT ADVANTAGE



OLDS RUNABOUT DISPLACES THREE HORSES IN R. F. D. WORK

freight siding. This necessitated the negotiation of a pretty long, steep hill, but no difficulty was experienced in this respect. The batteries are charged on the company's premises. Charging plugs are conveniently arranged in the various stalls into which the vehicle is backed when awaiting loading. There are two motors driving direct to the rear wheels. The battery is composed of forty-two cells and is underslung, the cells all being in one tray. The average daily mileage is about 35 miles, which is also the limit of the batteries. When the vehicle is idle, as during the noon hour, the batteries are charging, so they are never allowed to run out. The company's coal pocket is located in the vicinity of the river and the vehicle leaving the yard with a full load has a long hill to climb. At this season of the year, when everyone is renewing his supply of coal for the winter, the truck is especially valuable, inasmuch as it is possible to do three times the work of a horse outfit. The cost of repairs is small and, everything considered, the truck is a most desirable acquisition. In heavy winter weather it is not operated, as are most of the other vehicles about town.

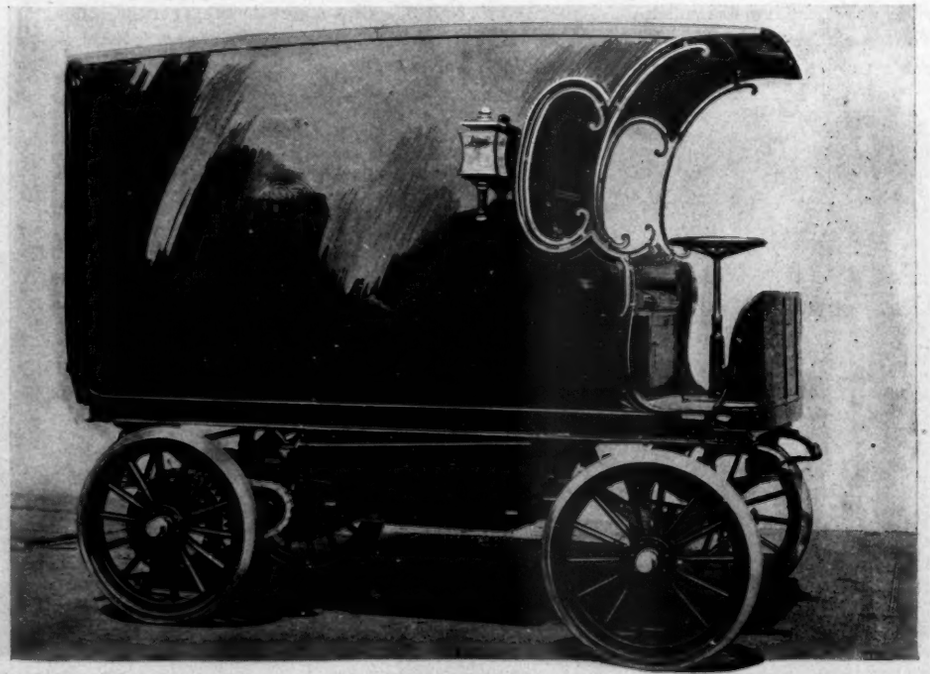
TRUCK CARRIES SPECIE

Many novel uses are made of delivery wagons these days, but it is doubtful if any is more so than that of the Lincoln Trust Co., of New York city, which uses a Columbia 1,000-pound delivery wagon for conveying specie from the bank to the sub-treasury on Wall street. This vehicle was recently completed by the Electric Vehicle Co. and is a pretty piece of work. From all outer appearances one would never suspect the contents of the vehicle, which, if possessed by most people, would prove a fortune. Each end of the van is double-doored and screened by heavy iron wire doors, which are secured by Yale locks, no two locks being the same. The interior of the vehicle has seating accommodations for four armed men, as well as for a safe to contain the specie. In warm weather, if desirable, the upper half of the doors may be opened, leaving the lower half secured. The wire screen doors, even were the wooden doors opened, in case of an attack, would be sufficient to repel an assault, or the upper half being opened the lower section would serve as protection for the occupants, who could easily command an attacking force. Even were an attacking force to secure possession of the van, the heavy safe would retain the specie, and this could not be easily disposed of, carted away or opened before a force of reserves would be available.

STEAM CHEMICAL WAGON

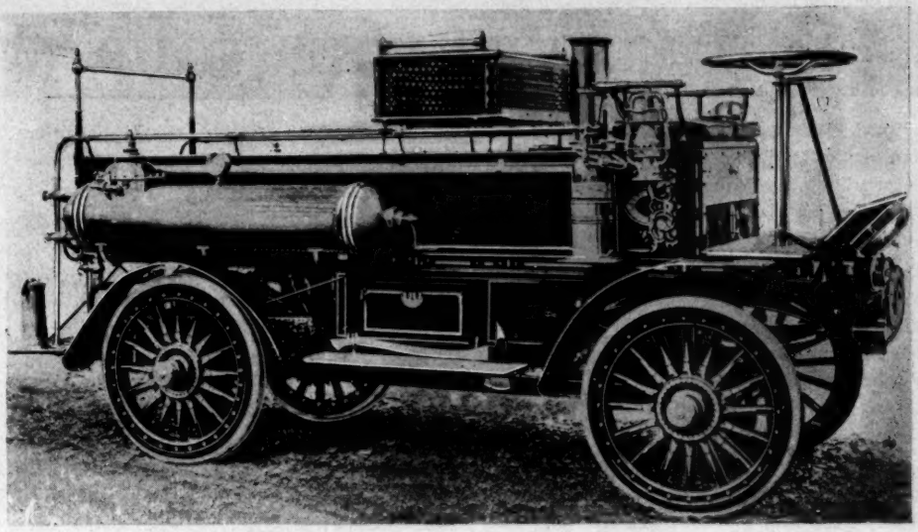
While self-propelled steam fire engines have been in common use in this country for nearly half a century, the application of a power unit to minor apparatus is of but recent occurrence. The first use of a machine of this type is that of the New London, Conn., fire department, which, by the way, is a volunteer organization, and the vehicle now in service was purchased by the members of Niagara Hose Co. No. 1 with their own funds, which were secured after much hard work.

In general appearance the vehicle follows closely the lines of an ordinary hose wagon of horse draft. The power plant is composed of a 1,000, ½-inch copper tube boiler and two double-cylinder, simple-acting, Mason steam engines, which are suspended on pivots that they may sway just a trifle as may be necessitated by the action of the vehicle. Each engine is of 15 horsepower. The power is transmitted from the engine shaft to an intermediate shaft, and thence to the rear wheel, each engine driving one wheel, though if necessary one engine can drive the machine. Despite the elimination of the differential no perceptible skidding is said to result and corners are negotiated at good speed. One throttle controls both engines. The boiler is 28 by 30 inches and is located in the rear of the front axle, the vent stack from the same being in the rear of the driver's seat. Each engine is provided with an individual pump, while a third one serves water for the boiler while the engine is in quarters, being automatic in its action. The gasoline for fuel is contained in two 30-gallon tanks, while two tanks of the same equal capacity contain the chemical fluids for use at a fire and extend along the sides of the vehicle. Sufficient fuel and water are carried to permit a 9-mile run over the road. Wheel steering is employed, a four-armed wheel being secured to a vertical pillar which is contained in an eccentric steel block held in place by a steel collar which engages the distance rod working direct on the left wheel. The throttle is located in the center of the driver's seat, the reverse being conveniently placed under the steering wheel. The engines are set at an angle of



SPECIE ELECTRIC CARRIES FORTUNES THROUGH NEW YORK STREETS

45 degrees. Roller steel chains are used. The wheels are 36 inches in diameter and are fitted with 4-inch solid rubber tires. The body of the vehicle is secured to a primary channel steel frame, which rests on elliptical springs secured to a secondary frame, this in turn being secured to the axles. When in quarters steam is maintained at 250 pounds, the boiler being tested to 1,600 pounds. Three hundred feet of chemical hose and 1,000 of 2½-inch duty hose and hand extinguishers, axes and miscellaneous fittings comprise this remarkable unit for coping with the element. The boiler when in quarters is heated by gas. In view of the fact that the city of New London has no permanent fire department the chemical is a very desirable acquisition. When originally installed the boiler was composed of 600 tubes, which proved inadequate, thus they were increased to 1,000. A similar engine is in service in Honolulu. Both are the product of the American Fire Engine Co., of Elmira and Seneca Falls, N. Y., the only concern utilizing steam for this purpose in this country at present.



NEW LONDON'S STEAM CHEMICAL WAGON

R. F. D. OHIOAN IN LINE

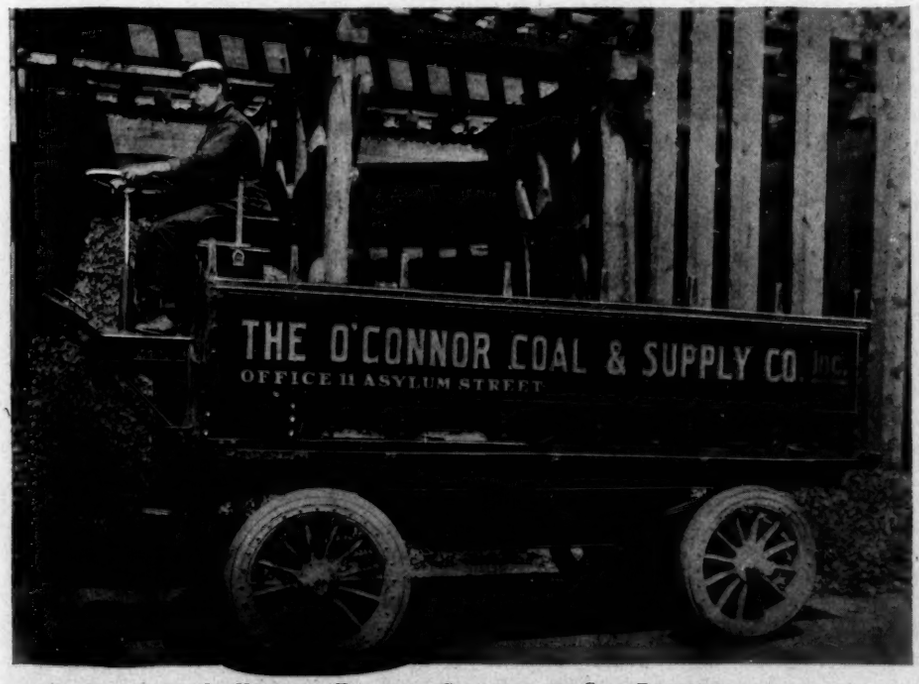
The honor of having been the first rural mail carrier in Ohio to purchase and use an automobile in the rural mail delivery service is claimed by Jay Radebaugh, who has a long route over the level roads of northwestern Ohio, heading each morning from the little burg of North Baltimore.

"Yes, my name is Radebaugh and I reckon I am the man you're looking for because I think I am the only one using an automobile for this work in these parts," he said to Motor Age man. "A lot of the boys have become interested, but I have been using my machine almost every day for 10 months, so I think I am a pioneer in the game. So far as I know I was the first in Ohio to buy a machine, and possibly the first in the country. Rural Route Inspector Swayne made my route with me a short time ago and told me it was his first official trip in a machine. He was more than pleased with the time I made and in the success I was having. On the day he was here I made 30 miles with 147 stops in 4 hours, which would have taken a horse more than twice as long to cover, as the day was very hot.

"How did I come to try it? Well, I have always been interested in the automobile. I was not making a great deal out of my route, having to keep two or three horses, and after making a trial trip and watching the results of the machines in other road work I decided to take a chance, believing that if I took proper care of the car I could reduce expenses and save time in my work. The results have exceeded my expectations. I cover daily about 26 miles in about 3 hours. The conditions of the roads are just fair. The country is rather level and 20 miles are over stone roads; about 5 miles of the stone road have no top dressing and consist of very coarsely crushed stone, which makes it very rough. Then there are 6 miles which are about as bad roads as a person ever has to force a machine through —black muck and clay which sticks to the wheels and makes them slide when wet, as it is much of the time during the spring.

"But with all the bad conditions of road and weather I have run my machine practically all the time for 10 months and have used a horse only six times in that time, and I used my machine regardless of weather, summer and winter, and was out in it during the worst that we had last winter.

"Cost of operation? Yes, I have a very fair idea as to what it costs me to run the machine, and I know what it formerly cost me to operate with horses, and I can assure you in advance that I am greatly pleased with the results. In the 10 months I have used the car I have covered 7,500 to 8,000 miles and $12 will pay all repair bills. I am thoroughly acquainted with my engine and anything outside of actual breakage I take care of myself. I have on my route 160 stops and handle from 7,000 to 10,000 pieces of mail per month, this being one of the largest routes in the country. I consider that with care an automobile will cost less than half as much to maintain as the necessary number of horses and it will do the work in about half the time, so you gain both ways. It takes about 20 cents per day to operate my Olds, the present price of gasoline here being 15 cents per gallon. When you consider that most rural routes take from two to three horses and extra buggies and harnesses you can see that the expense is no small item. The best you can board a horse for in this section at the present high prices for hay and oats is about $12 per month, not including shoeing, repairs on wagons and harness and doctor's bills."



IN HARTFORD ELECTRICS SERVE IN THE COAL BUSINESS

FROM THE FOUR WINDS

Good Work Goes On—The Camden Automobile Club, of Camden, N. J., young but enterprising, has caused guide and mileage boards to be placed along the entire route between Camden and New York.

A Six-Wheeler—One of the novelties in France is a six-wheeler which has been turned out by the de Dietrich people from the Lunerville factory. A bus and a char-a-banc are already out and in the trials given them have shown well in point of strength and flexibility.

Says 6 Miles an Hour—As a result of numerous complaints from the farmers of East Feliciana parish, Louisiana, the police jury of that parish, at a meeting last week in Clinton, passed an ordinance providing that owners of automobiles shall not run more than 6 miles per hour over the public roads. A fine of not less than $10 or over $25 for a violation of the act was provided.

Home for New Club—The Chicago Motor Club has secured quarters in the New Southern hotel, right in the heart of automobile row, and will have a house-warming next week. Officers elected are as follows: President, William H. Arthur; first vice-president, Joseph F. Gunther; second vice-president, John W. Hayden; secretary-treasurer, George G. Greenburg. Another election will be held when the club membership shows fifty.

Breaks Motor Cycle Record—L. J. Mueller, of Cleveland, arrived in New York Monday on a motor cycle and claimed a new transcontinental record, asserting his time from coast to coast was 31 days 12 hours 13 minutes, as against the Chadeayne mark of 48 days 11 hours 35 minutes, made a year ago. Mueller left San Francisco August 10 and his cyclometer shows 3,568 miles. Mueller's best day was from Fort Plain, N. Y., to New York, a distance of 213 miles. His poorest day was in Utah, when he was caught in a severe rainstorm and made only 20 miles. On August 10 he was unable to travel at all, however, as the storm was too severe.

Alcohol Deal—Manufacturers of wood alcohol from New York state, Pennsylvania and Wisconsin, numbering about a dozen, met in Buffalo in secret session recently. It was said they discussed the sale of the Wood Products Co., of Buffalo, in which Henry J. Pierce is interested. He is president of the company. Rumor says the company is to be disposed of to the Distillers' Securities Corporation, commonly known as the whiskey trust. President Pierce denied this. From another source it was learned, however, that an agreement was made when the bill abolishing the tax on alcohol was introduced that if it were adopted the stock of all the wood alcohol concerns of the United States, including the Wood Products Co., would be taken over by the Distillers' Securities Corporation in the near future.

Auvergne Cup Entries—For the Auvergne cup, to be contested between September 3 and 8, some fifty cars and lighter machines have been entered. Not all the best known makes are competing, but de Dion, Gobron, Aries, Delahaye, Lorraine-Dietrich, Peugeot, Rochet-Schneider, Mercedes and Berliet are all represented by one or two cars.

New Garage Law—Councilman Revelle, of the Seventh Ward, has introduced an ordinance at Seattle, Wash., which provides that no automobile garage is to be erected or maintained outside the first fire limits to contain more than one machine, unless the written permission of more than two-thirds of the property holders in the block in which the garage is to be situated is first obtained. It is Mr. Revelle's idea that the public garage in frame buildings is a menace to property, and that the risk should not be incurred without the sanction of nieghboring property owners. The Seattle council has passed an ordinance prohibiting the dropping of grease and oil on the streets by automobiles.

Glidden's Winter Trip—Charles J. Glidden will resume his globe trotting a-motor in November. He has planned to tour to Chicago from Boston. At Chicago, where he is very much at home, Mr. Glidden will fit his car with metal-flanged wheels and travel over the rails of the Rock Island railroad to El Paso, on the Mexican border. If he can secure the necessary permission he will continue his run over the railroad to Mexico City. On his return he will run over the road to Galveston, and from there ship his car to Port Said, Egypt, where he will take up foreign touring in the spring. Mr. Glidden states that he has already traveled 33,600 miles in thirty-five different countries.

Socialist a Car Owner—Things are coming to a pretty pass when even the disciples of Herr Most find it necessary to use an automobile—an infallible sign of wealth and the pet vehicle of the hated rich—to accomplish their ends. Morris E. Gibson, of Allentown, Pa., an aspirant for congress on the socialist ticket from the Berks-Lehigh district, has purchased a motor car to use in his business and his campaigning. Some of his supporters are scratching their chins dubiously and wondering how they are to keep his fences intact with their candidate flying about town in an automobile, just like an ordinary rich republican or democrat. Gibson has not yet become thoroughly acquainted with his car, and last Monday, while starting the engine, the crank flew back and fractured his arm. This will keep him out of the machine for some weeks, and will increase his somewhat dubious chance of election.

Nashville After Good Roads—The Nashville Automobile Club has inaugurated a movement for good roads and it is proposed to establish a route between this city and Louisville, Ky., by the co-operation of the automobile club of that city and the assistance of the several county road supervisors of the two states.

Youngstown in Line—Some interesting experiments have lately been made in the vicinity of Youngstown, O., in the use of automobiles in delivering mail on the rural routes. It has been shown that an automobile can deliver mail to 300 places in less than one-half the time that it takes two drivers to deliver mail to 400 places with their horses. The bad roads that prevail in that section much of the year preclude the use of automobiles except on the pikes, but a strong effort is now being made to get automobile delivery on these highways.

Will Keep Hustling—The League of Louisiana, recently organized in the state to safeguard the interests of automobilists, expects shortly to begin a systematic and energetic campaign for good roads throughout Louisiana. It is pointed out by the organization that there are many beautiful routes for tours in the state that might be taken advantage of by the automobilist if the roads were only in better shape. Several long shell roads have been projected within the past 3 months, but the leaguers declare that they will not be satisfied until a network of these boulevards covers the entire Pelican state. The campaign will be carried on through the mails for the time being, and later the matter will be taken before the next legislature, which meets in Baton Rouge during the spring of 1908.

Nashville Club Reorganized—A fresh impetus has been given to motoring in Nashville by the reorganization of the Nashville Automobile Club and the election of a new board of directors and of ficers. It is proposed to establish a road house, probably out from the city some 10 miles, and the matter is being taken up for immediate action with a company that is improving Belle Meade, that historic old stock farm out on the Harding pike, with prospects glowing for a speedy consummation of the plans, which will mean much toward the advancement of motor interests in Nashville, where more than half the automobiles in the state of Tennessee are registered. The following officers were elected: Samuel G. Douglas, president; F. O. Watts, vice-president; J. C. Symmes, secretary; W. P. Bruce, treasurer. They will "do something" at once.

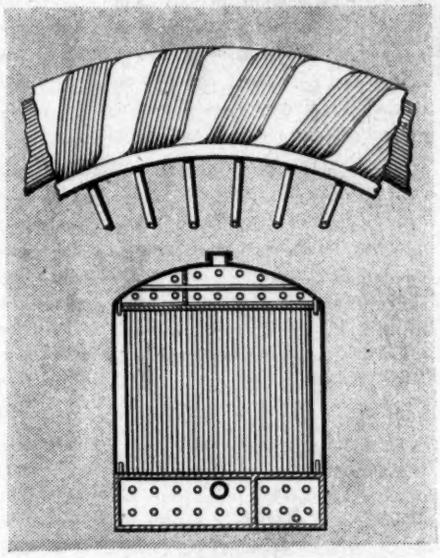
CURRENT AUTOMOBILE PATENTS

Spring Wheel—No. 830,083, dated September 4; to A. H. Kopperud, Byron, Cal.—Sixteen, or any other number, C-shaped spring spokes in this wheel attach to the hub by eyeholes and bolts and carry at their outer, or tire, ends tread blocks supported on circumferential extensions of the spokes. These tread blocks overlap, interlocking with the block on the preceding spoke and similarly overlapping with that of the subsequent spoke. Arrangements to prevent lateral movement of these blocks insure rim strength, and traction is gained by a series of ribs across the tread part of the tire blocks.

Anti-Shock Spring—No. 830,454, dated September 4; to J. H. Sager, Rochester, N. Y.—To overcome the sudden dropping and rebounding of motor car springs when traversing rough road surfaces the inventor arranges for inserting a barrel-shaped coil spring between the frame of the vehicle and the car axle in case of a semi-elliptic spring and between the top and bottom centers of the spring where a full elliptic construction is used. The illustration shows its attachment to a full elliptic spring, a small plate clipped to the center of the spring having a projecting bed to which the respective ends of the spring are secured by vertical bolt and washer. By making the spring barrel-shaped the large part compresses more readily than the smaller end coils so there is a gradual checking of a rebound at the start while the large coils are compressing. When these are compressed the checking action is continued against the more rigid small end coils.

Gear Shifting—No. 830,460, dated September 4; to T. Stafford, Topeka, Kan.—In the inventor's sliding gearset the multiple disk clutch, carried in a separate compartment in the front end of the case, is so devised as to be held in engagement by a coil spring, but is disengaged by the same lever that is used for shifting the gears in the transmission set. Lying along one side of the gearset case is a shifting rod connected near its center with the sliding gears of the set through arm and yoke. Lying outside of this shifting rod is a shorter rod connected by arm and collar with the clutch-shifting collar. To the rear of this latter rod is a short shifter arm with connections to the shifting lever at the right of the driver. The clutch shifter rod has on its inner surface a projection on which operates a cam on the gear shifter rod, the cam serving to carry the clutch shifter rod to the rear, disengaging the clutch. While this movement

VIVIAN'S TIRE TREAD



GARR AND LASER'S RADIATOR

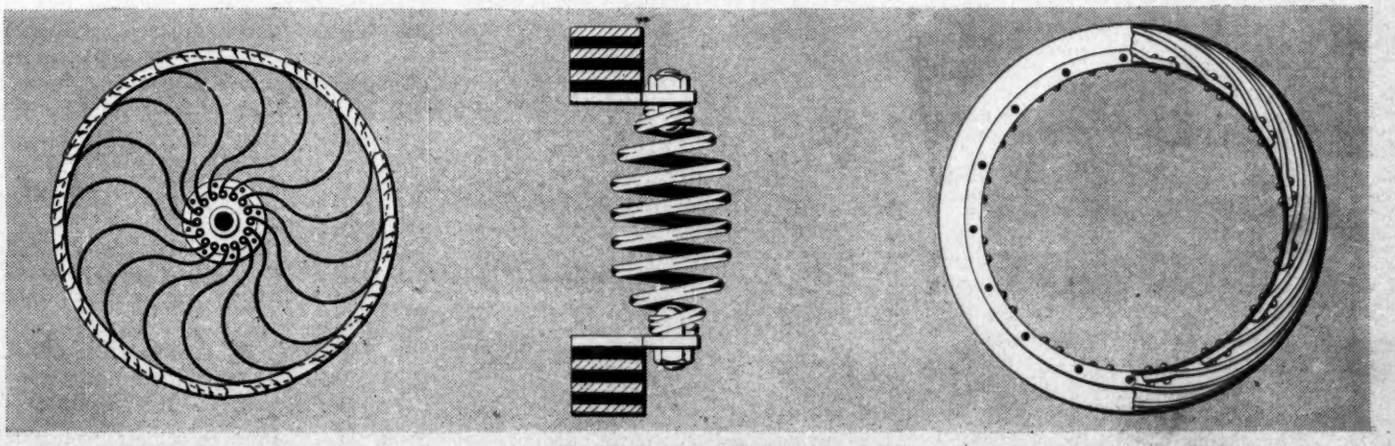
is taking place another one, that of moving the gears, is being carried out. On the gear shifter rod is a series of recesses registering with the various gear positions. When the shifter rod is in these positions the clutch rod is liberated and moves forward, engaging the clutch. The clutch cannot, however, be engaged until the shifter recesses and shifting rod projections are in perfect register.

Non-Slipping Tire Tread—No. 830,467, dated September 4; to M. Vivian Choswick, England—In the tire covering are hard and soft rubber, each grade in a strip formed spirally in the cover and the hard and soft strips alternating. Slipping is claimed to be overcome by the strips of hard rubber sustaining the vehicle weight and not suffering material compression, while the slightest weight dints the strips of soft rubber and traction is gained thereby. The two strips are cemented together in the process of the tire manufacture and present a smooth, regular outer surface.

Metallic Spring Tire—No. 829,996, dated September 4; to G. Ofeldt, Nyack, N. Y.—In this tire is an outer and an inner ring. Connecting these rings is a series of flexible strips fixed at their respective edges to these rings. A series of springs is enclosed within these strips. Each of the springs diminishes in thickness from the end where it is secured to the inner ring to the end of its attachment to the outer ring. Each spring presses at a point rearward of its free end against the inner face of the outer ring and also presses at its free end against the adjacent free end of another spring, forming an intercommunication of tread pressure among the springs.

Rope-Spring Tire—No. 830,267, dated September 4; to W. W. Westney, Scotland, Conn.—In this tire are three parts—a tire covering in the form of a coil spring, within this a rope answering as an air chamber and between the rope and the spring a rubber cushion. The spring covering attaches to the clincher rims in standard form.

Tubular Radiator—No. 830,219, dated September 4; to J. M. Gaar and J. C. F. Laser, Indianapolis, Ind.—This radiator for motor cars is designed to form the front of the motor bonnet and comprises three essential parts—upper and lower water tanks and a series of staggered vertical water tubes connecting these tanks. The water tubes are deep from front to rear, but exceptionally narrow, and are so made that the discharge end of them is smaller than the opposite end.



KOPPERUD'S SPRING WHEEL

SAGER SHOCK ABSORBER

OFELDT'S SPRING TIRE

AMONG THE MAKERS AND DEALERS

Altoona After Plant—The Mason Motor Car Co., of Des Moines, is considering establishing its plant at Altoona, Ia., which has made a bid for it.

Leaves Aerocar People—H. H. Thorp announces he has resigned as sales manager of the Aerocar Co., of Detroit. He has made no definite plans for the future.

Will Move Into New Place—Titman, Leeds & Co., Philadelphia agents for the Studebaker, will move into their new quarters at the northwest corner of Broad and Cherry streets about September 15.

Has Hotchkiss, Too—W. Judson Sprankle, manager of the Philadelphia Reo agency, just removed to new quarters at 242 North Broad street, has secured the agency for Philadelphia and vicinity of the Hotchkiss car.

Wayne On Chicago's Row—The Cornish-Friedberg company, Chicago representative of the Wayne, has decided to quit Wabash avenue for automobile row, having secured quarters at 1233 Michigan avenue in a new two-story building. The company will, however, have to wait until the building is constructed.

Doubles Its Capacity—The Van Automobile Co. has doubled the capacity of its salesroom and garage at Olive street, Walton and Washington avenues, St. Louis. The company is making active preparations for its 1907 trade and will announce some changes in its lines in the near future. It now handles the Marmon, Mitchell and Rainier.

Takes Up Horn Business—The Tubaphone Mfg. Co., of Indianapolis, has purchased the business and good-will of the Miller-Hopkins Mfg. Co., and has added several models of the Tubaphone, which it has improved. It declares it is now in a position to make prompt shipments. William T. Miller is president, John W. Oswald vice-president, and J. W. Comstock secretary and treasurer.

Quaker Branch for Matheson—The Matheson company last week established a branch in Philadelphia, at the Bellevue-Stratford garage at Broad and Walnut streets. Conn Baker has been appointed manager. The work of the Matheson at the Atlantic City meet, when Tom Cooper drove a regular stock car to a record of a mile in 0:50½, with seven passengers aboard, resulted in several sales during the week.

Cupid Busy—Mr. D. Cupid has filled his order book at the Chicago office of the Hine-Watt Mfg. Co. The marriage of C. E. Woodruff to Miss Selma Riehl, formerly stenographer in the office, marks the sixth wedding among the Hine-Watt traveling men since 1900, the list now comprising J. T. Burnham, W. H. Hubbell, W. A. Hartley, W. R. Johnston, E. M. Mulloy and C. E. Woodruff. Manager L. A. Hines is now thinking of installing a department for the promotion of connubial bliss as an adjunct to his lamp business.

Merkle Made Manager—E. R. Brandt, sales manager of the Corbin Motor Vehicle Co., visited New York last week to install Lawrence Markel as manager of the metropolitan branch, just purchased from the E. T. Kimball company.

Chicago Change—It is announced that the firm of Jerome A. Ellis & Co., 1404 Michigan avenue, Chicago, has been dissolved because neither Mr. Ellis nor H. N. Taylor could devote his entire time to the Frayer-Miller business. The Ellis part of the store probably will be taken by the Franco-American Auto & Supply Co., which already occupies half the space.

Franklin's Hub Branch—The Franklin people decided to locate their Boston branch at 671 Boylston street, which is opposite the Boston library and the Harvard medical college and only a short distance from the Massachusetts Automobile Club. Only the salesroom will be at this place, it being the intention of the company to open a repair shop in another quarter.

New Odometer Coming Out—The Oliver Instrument Co., of Minneapolis, will within a few weeks put upon the market a new speed indicator and odometer, upon which it has been at work for over a year. The new instrument has been thoroughly tested on all sorts of roads and cars, and has recently been demonstrated in the east. The indicator shows speed, trip mileage and total mileage upon a circular dial, and has proven steady and accurate.

Extending the Row—The decision of the Chicago Packard agency to build at 1615-1617 Michigan avenue marks the extension of the automobile row at least another block. The Packard dealers are now temporarily located at 1332 Michigan avenue in the old Peerless store. The new place will be two stories, with the show room on the first floor and the garage in the rear, while the second will be used for the storage and repair departments.

Carter Car Plans—It has been announced that the Carter Car Corporation, of Detroit, Mich., and Milwaukee, Wis., has decided to build a big plant in Washington, D. C. The company wishes to fill eastern orders in better shape, and also to eliminate high freight rates on completed cars, which formerly have been shipped from Detroit. In addition to the factory in Washington the company is building a new plant in Detroit. The company will manufacture runabouts, touring cars, auto-fire engines, police patrols, ambulances, launches, delivery wagons and truck and gasoline engines. The officers of the company are as follows: President, A. Gary Carter; vice-president, F. C. Jackson; secretary and general manager, F. L. Carter; western representative, H. Carter.

Tischbein Coming—Willy Tischbein, one of the directors of the Continental Caoutchouc & Gutta-Percha Co., of Hanover, Germany, and president of the Continental Caoutchouc Co., of New York, will arrive in this country September 25 on the Crown Prinz Wilhelm. He will attend the Vanderbilt cup races and also look after business pertaining to the company.

Henshaw Quits Thomas—C. S. Henshaw, of Boston, one of New England's first and largest automobile dealers, severed his connections with the Thomas Motor Co. on September 1. He has been in the automobile business over 10 years, and was that company's New England representative since the early days of motoring.

Lear Increases Capital—The Oscar Lear Automobile Co. has increased its capital stock from $30,000 to $200,000. Mr. Lear is desirous of securing larger quarters for his factory, as the present location at Gay and Fourth streets, Columbus, O., is much too small. It is probable a lot will be purchased and a new building put up, but as yet there are no definite plans.

New Pope Deal—The Columbia Steel Co., of Elyria, O., has become a Connecticut corporation, as one of the Pope interests. The company will begin business with $1,000, and an authorized capital stock of $300,000, divided into 3,000 shares of $100 each. George Pope, W. C. Walker and George T. Morrow, all of whom are interested in the Pope Mfg. Co., are named as the incorporators.

Canadian Exhibition—Buffalo motorists who attended the Toronto exhibition recently were much interested in the exhibit of automobiles shown under the grand stand at the fair. Among the exhibitors were: Canada Cycle & Motor Co., of Toronto; Hyslop Brothers, Toronto; Chatham Motor Car Co.; Oldsmobile, by the Packhard Electric Co., St. Catharines; Automobile & Supply Co., Toronto, and the Dominion Automobile Co., of Toronto.

New York Motor Mart—Plans are on foot to turn the Wendel building at Broadway and Twelfth streets, New York, into a motor mart, something on the plans of the Boston Motor Mart. It is proposed to have the main floor divided into show and salesrooms, while the balconies will be devoted to accessory firms, and the third floor will be given over to commercial vehicles. Among those interested in the scheme are W. I. Fickling, of Fickling & Co.; E. H. Lozier, of the Lozier Motor Boat Co.; Stewart H. Elliott, and Harry V. Kibbe. An option has already been

given to the parties named, and it is said that the annual rental will be in the neighborhood of $35,000.

Takes the Cadillac—E. S. Torrey, of Rockland, Mass., will be the agent for the Cadillac line next season.

Hills Moves—Horace B. Hills, Jr., has left Boston to undertake the agency for the Royal Tourist in Philadelphia.

One More, the Mora—H. E. Whiting, the New England agent of the Moon, has taken the agency for the Mora roadster.

Morrison's Line—A. E. Morrison, late of the Morrison-Tyler Motor Co., of Boston, will handle the Stearns and Oldsmobile lines.

Pearson Branching Out—W. Pearson, of Whitman, Mass., is just completing a garage capable of accommodating thirty cars. The garage will be next door to his large machine shop.

New Jones Salesroom—A modern four-story automobile salesroom and garage is to be erected in New York by the Jones Speedometer Co., on a site at the northeast corner of Broadway and Eighty-sixth street. It will lease the salesroom and occupy the upper floors for its own offices.

Changes in Philadelphia—There was a game of "change corners" pulled off in Philadelphia last week. The Ramblerites, bag and baggage, abandoned their old quarters at 242 North Broad, and moved across the street to their new building at 207-209. Scarcely had they abandoned their old haunts than the Reo people, who have been doing business through the medium of a temporary office at 309 Mint Arcade, threw a force of cleaners into it, and in a day's time had the place in trim for the installation of their cars and the office force. Another change which will take place late in the week will be the removal of Titman, Leeds & Co. from their old quarters at 317-319 North Broad to a larger and finer establishment near Broad and Cherry streets.

Seldenites Get Space—The spaces for the seventh national show in Madison Square garden, January 12-19, were allotted last Friday at a meeting of the show committee of the Association of Licensed Automobile Manufacturers. Every bit of available space, including the 8,000 additional square feet, has now been assigned. The method used in allotting spaces this year was wholly different from that of 1905. The importers and the motor and accessories makers had their space granted in bulk and did their own allotting. What was done by the show committee related to the twenty-nine manufacturers or standard cars who are members of the A. L. A. M. They agreed to the new plan of granting first choice of space to the manufacturer whose output and sales had been largest during the year ending June 30, second choice to the one showing the second largest output, and so on. As all these makers are licensed under the Selden patent and render regular statements as to output, this plan could be followed with exactness and general satisfaction.

Building Fireproof Garage—A large fireproof garage will be built in Fall River, Mass., for Wallace L. Wilcox, the agent for the Franklin cars. Operations on the building are to begin at once.

Buick Plans—The Buick Motor Co. will shortly remove its assembling plant from Jackson to Flint. The old engine works, which constituted the nucleus of the enterprise 2 years ago, will continue to be operated as a separate plant. The building has been greatly enlarged, and new machinery has been installed. This factory will be devoted exclusively to the manufacture of engines for the Buick two-cylinder car and runabout and the Whiting car, which will be built at Jackson by the Whiting Mfg. Co.

Keeps Tab on Imports—According to reports made at the office of the American Motor Car Manufacturers' Association, ninety-one cars were imported during July at a total valuation of $345,774. This is a decrease from July, 1905, when 101 cars were imported. There were 701 cars imported during the first 7 months of the year. On the other hand, exports for July were double those for 1905, showing that the American motor car industry is reaching out for the world's trade. There were 266 cars exported of a total valuation of $485,672. During the first 7 months of the year the exports amounted to $2,829,289.

Lozier Gets New Plant—The Stamford works of the Lozier Motor Co., at Stamford, Conn., heretofore operated under a lease from the Ball Mfg. Co., have been purchased outright and will be operated by the Lozier Motor Co. as an adjunct to the main works of the company at Plattsburg, N. Y. The Stamford works are being refitted and put in condition with a view to utilizing the plant to its fullest capacity on the 1907 work, and will enable the company to materially increase the output for 1907. Additions have been made to the Plattsburg works, and this plant is now working to fullest capacity.

Will Allot Show Space—In order that its members may have an opportunity of combining business with pleasure the American Motor Car Manufacturers' Association plans to have a special meeting at its headquarters in New York on Friday, October 5, the day before the Vanderbilt cup race. On that day space will be allotted to the members of the association for the seventh annual automobile show, to be held in Grand Central Palace, December 1 to 8. There will probably be an all-day session on the drawing and other matters of importance to the association. The next day the members will be cared for at the race, boxes on the official stand having been secured. It is understood that a number of important matters besides the show and the election of members will come up at the meeting of October 5.

Wheeler Franklin Branch Manager—F. D. Wheeler, traveling representative of the Franklin company, will be manager of the branch in Boston.

Sweeney an Agent—E. E. Sweeney, for several years connected with the Southern Automobile Co., of Nashville, has taken the agency for the Stevens-Duryea.

Keeps the Stanley—The Fall River Auto Co., 345 Durfee street, Fall River, Mass., will handle in the coming season, as it has done in the past, the Stanley line of steamers.

New Tire Concern—The Vehicle Wheel & Tire Co., of Syracuse, N. Y., has been incorporated with a capital of $100,000 by Edward D. Woods, of Indianapolis, and Edward Mitchell and Thomas H. Ward, of Syracuse. The company will make automobile tires. The invention places springs between the tire and the felly of the wheel. The spring consists of two steel hoops within the tire which extends around the wheel. There is besides this a resource spring which can be brought into action by a simple piece of mechanism. This resource spring is for heavy trucks. The tire is made of belting and it is said to be impossible to puncture it and it will not slip on wet pavements.

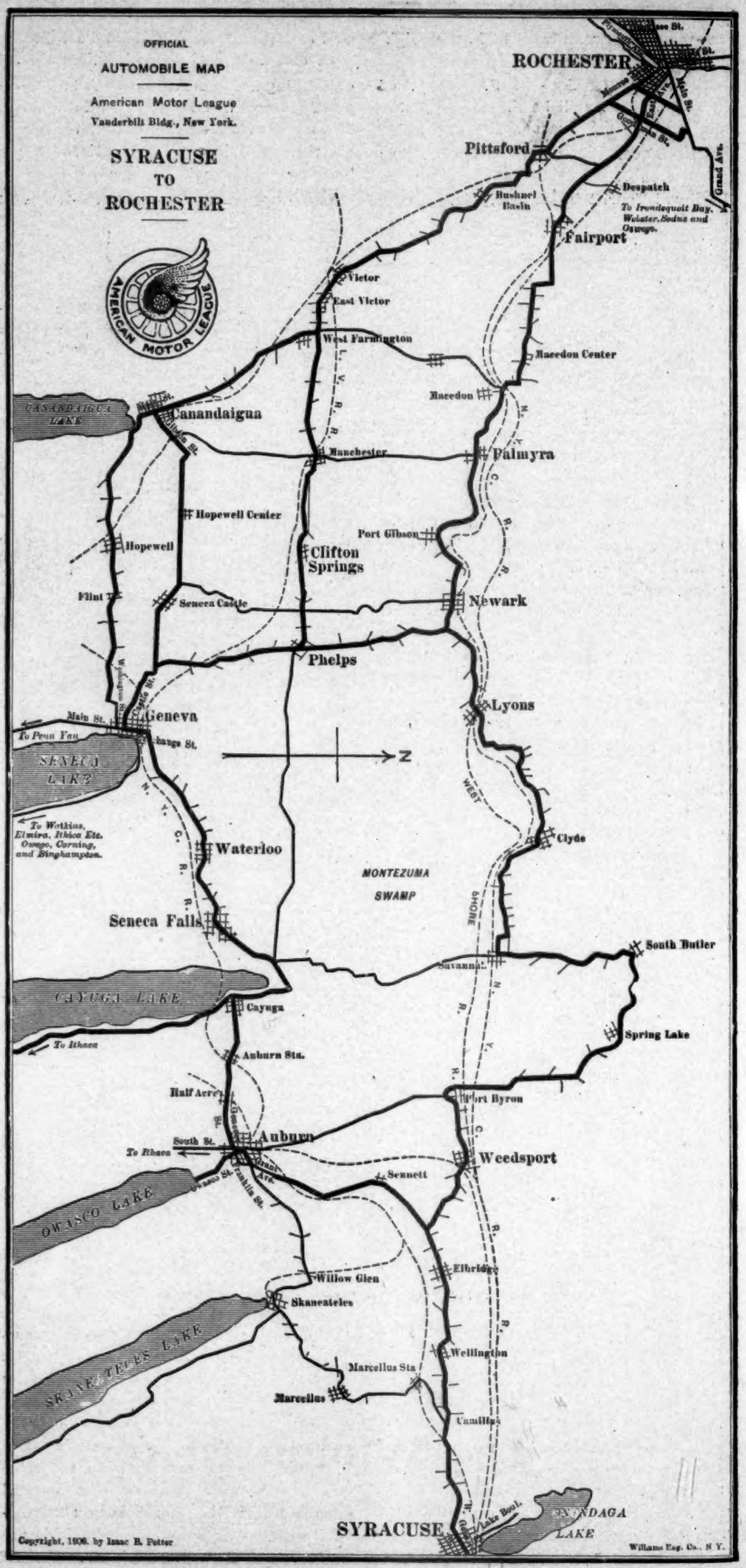
Briscoe's Tour—Benjamin Briscoe, president of the Maxwell-Briscoe Motor Co., has returned to New York from a trip west, where he has been inspecting proposed sites for the establishment of a new plant in that section of the country. A proposition has been made to the municipalities of several Indiana and other states, and Mr. Briscoe has looked over sites in Elkhart, Marion, Muncie and Kokomo. The company intends combining several or all of its plants in one of these cities, and building what will probably be the largest factory for the manufacture of automobiles in the world. It is planned to build a plant that will be capable of turning out a complete machine every 15 minutes.

Quakers Get '07 Cars—The arrival of initial installments of 1907 cars at various establishments along North Broad street the present week has made Philadelphia's gasoline row a busy thoroughfare. Gawthrop & Wister, who have already booked a score of orders for Elmores, were gladdened by the arrival of the first of their quota. The Keystone Motor Car Co., which took over the local agency for the Buick, left in the air by the dissolution of the Pennsylvania Electric Vehicle Co., corralled three 1907 Buicks. A carload of next year's Ramblers also reached the row on Monday. Row managers seem to be of the opinion that early shows and early decisions as to models have sounded the death knell of the winter slump—that dread period when "everything's going out and nothin' comin' in."

American Motor League
Official Bulletin
National Headquarters, Vanderbilt Building, New York

MAP OF ROUTE SYRACUSE TO ROCHESTER

By the southerly route, generally preferred, the distance from Syracuse to Rochester is 97½ miles and besides being a better road the accommodations en route, at Auburn, Seneca Falls, Geneva and Canandaigua are not to be despised. Between Geneva and Canandaigua an option is offered between routes, both shown on the map, while from Geneva a route is shown to Phelps, Clifton Springs, Manchester and West Farrington, at which last named place the tourist again joins the southerly main route. As shown by the heavy black lines, a northerly route may be taken via Weedsport, Port Byron, Spring Lake, South Butler, Savannah, Lyons, Newark and Palmyra, the total distance to Rochester over this line being about 86 miles. This map and all other official maps of the A. M. L. will be printed in the official road books of the league, and these books will be given free of cost to league members. When thus printed each map will be accompanied by text describing the various routes, giving distances, names of best hotels and garages and particular mention of various points of interest. In the meantime these maps will be printed on cards of tough material for convenient use so that a member wishing to extend his tour in a given direction may take with him only those cards which show the lines of his journey, leaving at home the bulky and sometimes inconvenient books, and dodging the perplexity of the man who has to "fumble the leaves."

LEAGUE MEMBERSHIP

The A. M. L. is "an organization with a purpose." It merits the good will and support of all automobilists who believe that their numbers should be united in a common cause. There is no initiation fee; dues, $2 per year. The secretary will gladly send printed information and membership blanks on receipt of postal card request. He will also send route blanks and printed circular "How to describe a route" to any reader whose interest will lead him to send for it. Anyone willing to help in assisting the league in this work is invited to put a shoulder to the wheel by sending information on the roads in his vicinity. Address American Motor League, Vanderbilt building, New York.